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THE
DENTAL DIGEST

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Prosthodontia as a Fine Art*

By B. L. Hooper, D.D.S., Lincoln, Nebraska
Chairman of Prosthetics, University of Nebraska

Did you ever stop to think what prosthodontia really is? Dentistry is classified as a science; then prosthetic dentistry is a science. The mechanical ability and exactness required bring it also very correctly under the classification of mechanical art.

But prosthodontia is more than a science and a mechanical art. It is a fine art. Fine arts are the arts of beauty, including painting and sculpture. As the artist blends the colors on his canvas, so the prosthodontist deals with the finest of hues to harmonize with and to imitate nature herself. As the sculptor deals with form, lines and curves, size and proportion, so the prosthodontist must work these details into his product.

The prosthodontist must reproduce nature even farther than the painter or the sculptor. Not only must the product of his art imitate nature in appearance and beauty, but it must so closely imitate nature that its detection is difficult even when placed, as it must always be, in direct contact with living tissue. Natural function also must be made possible, a fact that places prosthodontia ahead of any other prosthetic work, as well as makes it far more exacting than painting or sculpture.

To the individual who values personality and appearance the ordeal of losing his natural teeth and being forced to artificial dentures is one of no small moment. He and his friends and relatives are so often sadly disappointed in the transfiguration. Why? Because the artificial teeth vary so far from the natural in size, shape, color, alignment. In other words, the artificial teeth so often lack individuality.

Did you ever stop to think how teeth affect personality? Think of Theodore Roosevelt, and immediately you see a broad smile, conspicuous on account of teeth. It has been said that Roosevelt was a set of teeth surrounded by a man. That is rather a broad statement, yet there is no doubt that his teeth were a very important part of his personality, indicating power, individuality and a forceful character.

*Read before the Eighth Annual Meeting of the National Society of Denture Prosthetists, Philadelphia, Pa., August 19, 1926.

So, to a greater or less degree, teeth, whether they be natural or artificial, and the facial expression which they produce are factors in the personality of the individual.

Too often facial expression is changed perceptibly when dentures are necessary, and personality is lost or altered. And with these changes come wrinkles, sagging tissues, a disproportion of facial lines or curves, all of which might have been avoided with proper appreciation on the part of the prosthodontist of the fine art necessary in this work.

The individuals carrying these disfigurements may or may not be aware of the cause. However, the fact that such changes are taking place invariably causes more or less unhappiness, according as the individual values his appearance; and continued unhappiness causes a depressed mental state that is not conducive to good health.

Not only is the health and happiness of the individual impaired, but that of his associates is indirectly affected. Personal appearance should never be neglected. It is a physical, mental, social and economic asset that demands constant attention.

A small percentage of persons who have lost expression through the wearing of dentures realize the source of the trouble, but not knowing that these conditions might have been avoided, or that they yet can be remedied, they worry along, growing older in appearance faster than in years and losing interest and enthusiasm in life itself.

The ideal service of our profession is to give to humanity comfort, happiness, and health, in so far as we are able to do so. Then a keener conception of art in its application to dentistry and a finer discrimination of facial esthetics must be developed. To that end let us consider some of the factors which affect such service.

Of first importance is the environment in which the prosthodontist works. Pleasant surroundings, congenial and efficient assistants and coworkers, adequate apparatus and equipment, all managed by an efficient and complete office system, are indispensable. Imagine yourself stepping into a library. Do you not feel the atmosphere of study and thought? Can you not feel awe possess you as you step into a magnificent cathedral? In a similar manner your office affects you as you enter for your day's work. Does its appearance give you the feeling that you are in a "sweat shop," or does it create a mental calmness that relaxes and refreshes the muscles of your body and mind? Does the very atmosphere give you a confidence that details are being cared for, that efficiency and service are never neglected, and that harmony prevails?

These are the mental responses that you would have registered with every patient or prospective patient. Your office may be so arranged and equipped that such confidence is at once assured. However, the effect on the operator is of first importance in planning and equipping the

office and building the organization. The effect on the patient will follow.

True art cannot be developed under a feeling of strain, whether it be due to unpleasant surroundings, lack of harmony among coworkers, inadequate equipment or confusion in the office management. Our office has been arranged, as far as we have been able to do so, with these ideas in mind. It is constantly in an evolutionary process, as new requirements are met, so it is not cited as an ideal arrangement. However, some thought herein offered may prove a nucleus around

Fig. 1
The waiting room.

which you may develop ideas that will enable you to deliver better service, so an illustrated description of my own office is offered. We enter the waiting room (Fig. 1). This is not equipped elaborately, but is very comfortable and cheerful, with good lighting, and reading material available for any who care to use it. Our appointments, however, are met promptly, so long waits are unusual. We make but four appointments a day on Mondays, Wednesdays and Fridays, the first at

10 A. M., the second at 2 P. M., the third at 11 A. M., and the fourth at 3 P. M. Rarely do we have appointments at other hours.

Tuesdays, Thursdays and Saturdays are reserved for mechanical work. Much of this is done by the laboratory, but certain parts I prefer to do personally. Frequent interruptions, even though by appointment, impede progress and efficiency in mechanical procedures, so this schedule was adopted and has proved its worth.

Passing from the waiting room, we get this view as we enter the studio (Fig. 2). This is a combination of the so-called operating room

Fig. 2
Combination operating room and laboratory.

and laboratory. All my laboratory work, as well as impressions, fittings, etc., is done here. The mahogany panels at the right are the end of the laboratory cabinet and the door opening into the rear of the cabinet. All electric wiring, compressed air pipes, plumbing, etc., are accessible through this door.

The cabinet is better seen from another angle (Fig. 3). This cabinet was designed to increase efficiency and to minimize labor in

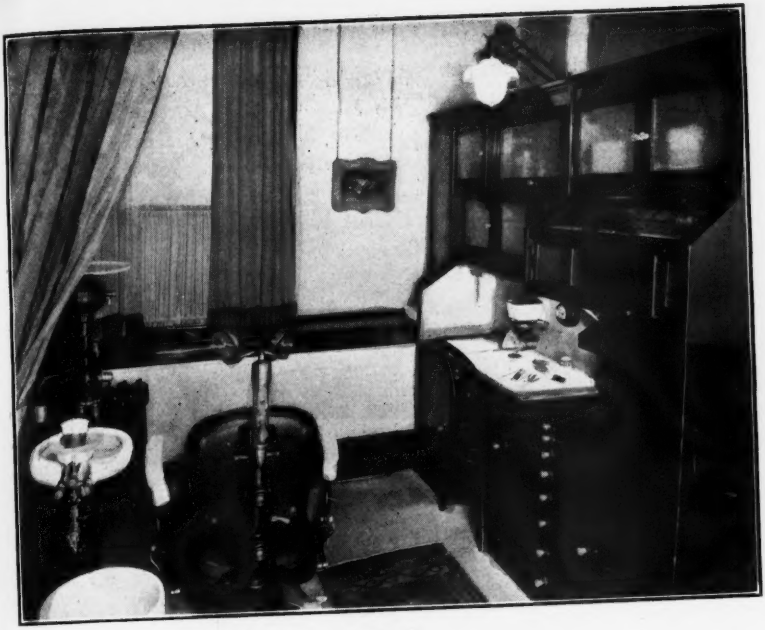


Fig. 3
An especially designed cabinet.

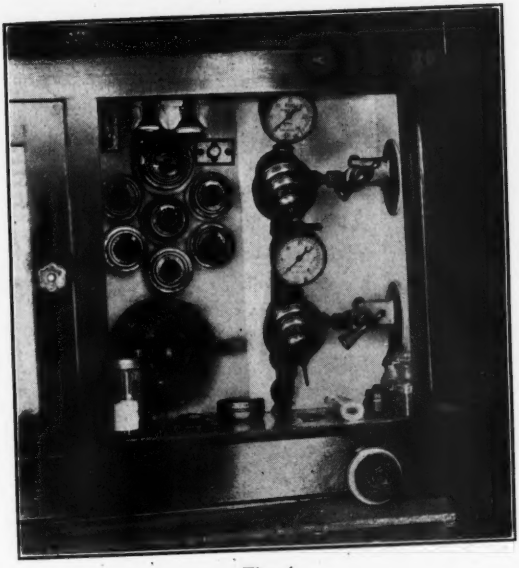


Fig. 4
A compartment in the cabinet.

the construction of dentures. Another purpose was that work might be carried on in view of the patient, yet in a more presentable manner than is usually possible in the ordinary laboratory. Being allowed to watch the actual work of constructing his own dentures creates in the patient a sympathetic interest in and a realization of the complexity of their construction. The care and exactness required in minutest details, the wide range of knowledge necessary in science, chemistry, anatomy, mechanics and art, and something of the time consumed in properly made dentures are items which he will appreciate more forcibly, and his appreciation will be reflected in his cooperation.

A short description of some of the interesting points of the cabinet might be of interest. The working board is at the correct height to insure perfect ease when sitting on a chair that was selected for comfort. A wall burner, in which a vulcanizer heater was substituted, is mounted back of the working table, and a small Bunsen burner connected by flexible metal tubing is accessible at any position. The heat and fumes are carried to the back of the cabinet and out of the room. The various drawers and door-compartments hold all necessary equipment, instruments and supplies. The right-hand door compartment (Fig. 4) just above the working surface contains the switchboard, consisting of electric switches, a burglar alarm, pressure valves for oxygen and acetylene, and a rheostat for operating electric fans.

Everything with the exception of the polishing unit is accessible to the operator from his chair. The projecting portion on the right center (Fig. 3) contains the polishing equipment. A lever just below the wood panel in the center of this compartment opens the two small sliding doors on either side of the wood panel and also automatically turns on two tubular lights within the compartment (Fig. 5). The operator reaches to the lathe through the small doors and watches his work through the half-round glass above the wood panel.

This unit is efficiently and compactly arranged and is easily kept in presentable condition. Below this are the plaster and investment compartment. These are filled from the compartment above the polishing unit, where also are housed the oxygen and acetylene tanks.

The small narrow door to the right and below the working board (Fig. 6) opens with two blowpipes hanging on the inner side, one for oxygen and acetylene, the other for acetylene and air or for gas and air. Gas and air valves are conveniently located on a panel just inside the door.

Shortly after the picture in Fig. 3 was taken, which was early in 1925, another feature was added, which we feel is of immeasurable value. A projectoscope (Fig. 7) is mounted below the polishing unit, so that it is easily adjusted to throw illustrations before the patient or prospective patient. Many of us lack the ability to describe and explain

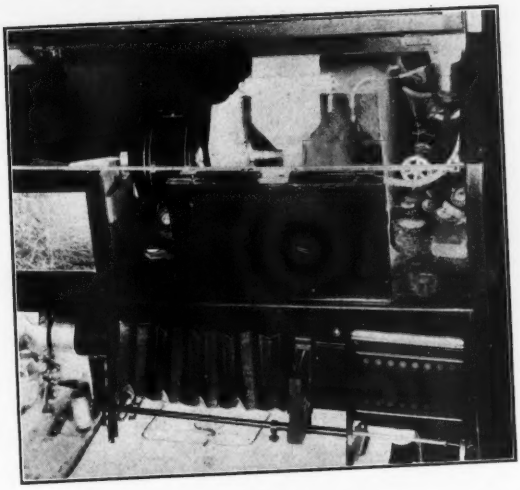


Fig. 5
Lathe compartment in the cabinet.

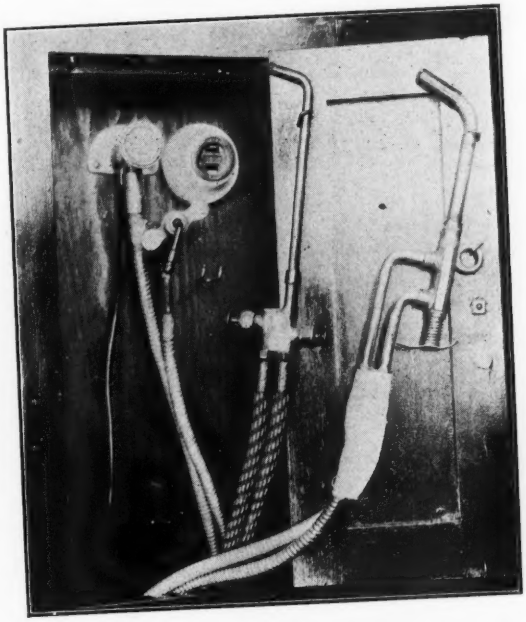


Fig. 6
Blowpipe compartment in the cabinet.

in terms that are clear and convincing some of the whys and wherefores that a patient should know, but with the aid of slides made from actual photographs these things may be pointed out in an interesting and intelligent manner. This projectoscope is an interest-creator. The patient sees dentures from a different viewpoint and more readily realizes their value from the standpoint of construction, appearance and possible pathological changes.

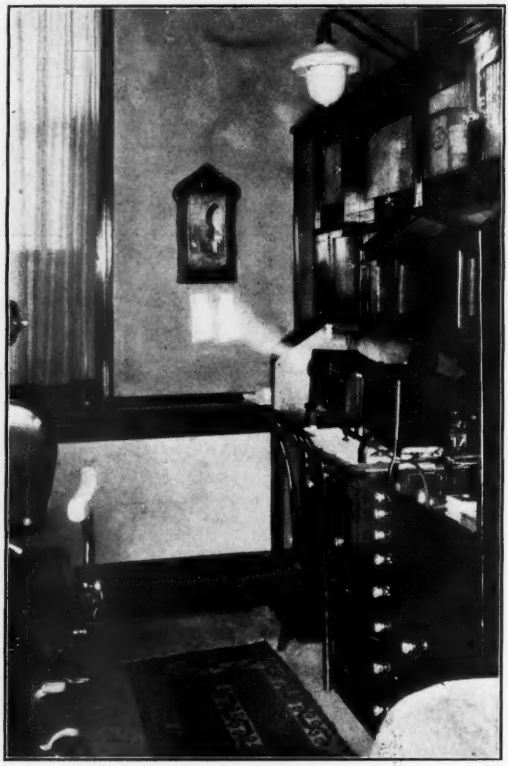


Fig. 7
The projectoscope in use.

We are now looking south in the same room (Fig. 8). The overstuffed furniture, shaded lamps, oriental rugs and real pictures lend a living-room atmosphere to the studio. This was developed with two ideas in mind. As mentioned before, the prosthodontist and his coworkers deliver better service under harmonious surroundings, but the main idea of the living-room atmosphere is the psychological effect on

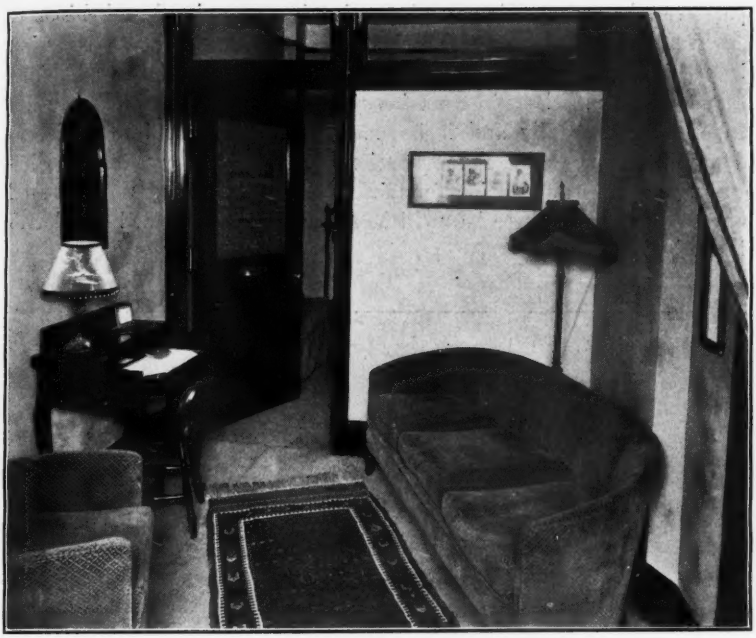


Fig. 8
The operating room—looking toward the waiting room.

the patient. There is nothing to suggest dental work, which to most persons means discomfort and pain.

When placed in a dental chair, the average individual immediately anticipates something disagreeable. Remembering all the painful experiences which he may have had in the past and dreading the next ordeal, which is still a mystery to him, he tenses his muscles and pre-

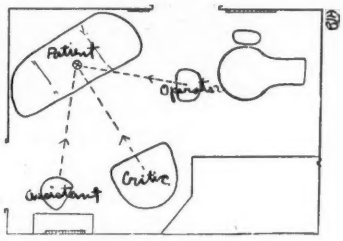


Fig. 9
Diagram of the operating room.

pares for the worst. His mental reaction is unconsciously rebellious to every move the operator makes, instead of cooperative. Such reaction is especially detrimental to successful adjustment of trial dentures. The fine, delicate muscles of expression with which we must work are not functioning naturally and it becomes difficult, if not impossible, to determine the normal facial expression. In order to overcome this difficulty, the patient appearing for trial of dentures is asked to be seated on the davenport, where he "will be more comfortable until the doctor is ready."

Fig. 10
The business office.

The friend or relative who accompanies (we always ask that some one come along to criticize and approve) is invited to take the large chair immediately in front of the patient, and a conversation on subjects other than teeth is started by my assistant. Immediately the friendly atmosphere of the room places the patient at ease, and when I suggest that we can work there just as well as in the dental chair, he is again reassured.

After inserting the dentures, I seat myself at the patient's left and conversation is resumed, during which my assistant and I are carefully noting and criticizing the dentures (Fig. 9). Necessary changes are made as they are apparent. The patient is asked to stand and move about the room, look into the mirrors on either side of the room and criticize the dentures freely.

As these moves are made, I step to the other side of the patient, and my assistant takes my chair, so that a view from every angle and

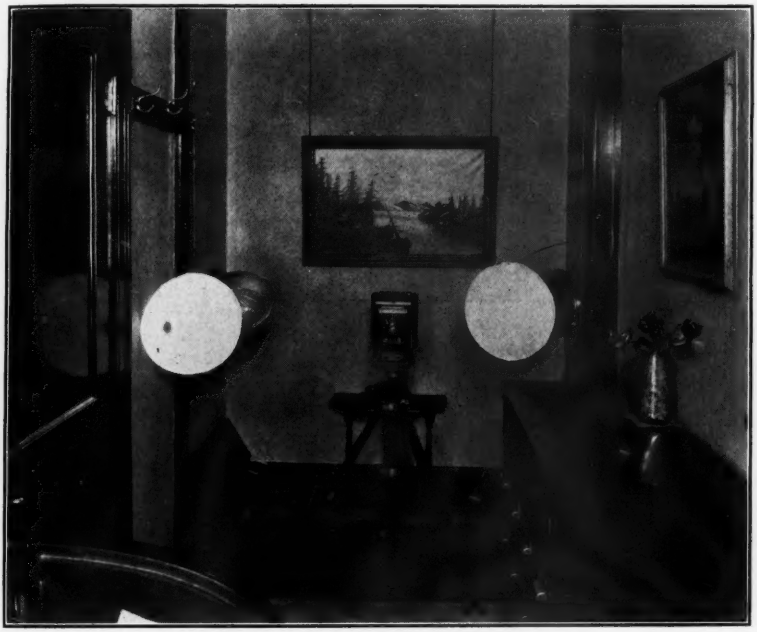


Fig. 11
Photographic department.

in different lights is obtained. This is very essential in establishing the correct esthetic requirements. The correct maxillo-mandibular relationship, which is the key to the esthetics, is accomplished surprisingly easily under these conditions, and the finer artistic developments are arrived at with less perplexity.

Our business office and study (Fig. 10) opens off from the studio, so that records, reference books and appointment schedule are available at any moment. It is slightly different from the ordinary business office, but our records are considerably different and original.

Fig. 12
Record photograph—front view.

Fig. 13
Record photograph—profile.

Appreciating the value and importance of teeth as they affect individuality, personality and character, the prosthodontist must make careful observation and interpretation of facial expression before the natural teeth are removed. In order that these observations may be retained for use during the construction of the dentures, they must be recorded in some dependable and accurate manner. It is utterly impossible to keep them in the mind's eye, so an accurate and complete system of records becomes equally as essential as artistic appreciation and ability and mechanical and scientific knowledge.

It has been truly said, "The camera does not lie," so we have developed a photographic record as a part of our system. A series of six pictures is made of each patient before the natural teeth are extracted. These give accurate and detailed information, which can be readily interpreted, and which may be filed compactly for future reference.

This is our photographic department (Fig. 11). The camera may be adjusted to photograph objects in exact size, half-size, quarter-size, or eighth-size, so that actual measurement may be computed from prints. Large electric lights are mounted on either side of the camera. These remain always in the same position in relation to the camera and to the patient. This assures that a comparison of pictures gives a true comparison of conditions as they are. The arrangement of lights, camera and patient has also been perfected to bring out the lines of the face rather than to eliminate them as the photographer does.

The first picture (Fig. 12) we make of a patient about to be in need of denture service is a half-size straight-front view. This records characteristic lines, dimensions, proportions, etc.

The half-size profile (Fig. 13) gives much the same information from another angle.

(To be continued)

A Suggestion for the Elucidation of Some Dental Terms

By Thaddeus P. Hyatt, D.D.S., F.A.C.D., New York, N. Y.

Dental Director, Metropolitan Life Insurance Company

It is to be regretted that misunderstandings arise among men who are sincerely and disinterestedly working to gain and give out information for the benefit of mankind and for the advancement and reputation of our profession.

This article has been prepared with the hope of securing the co-operation of others in the elucidation of some dental terms which are now in common use, and which will be more widely used in the future in the presentation of articles along the lines of preventive dentistry. That it is needed is shown by the fact that many writers use the terms *sulci, fossae, grooves and fissures* as if they were synonyms.

The definitions of the following words are given as found in different dictionaries.

FOSSA

"A cavity of greater or less depth, the entrance of which is always larger than the base."—Dunglison's *Medical Dictionary.*

"Long, narrow excavation, canal, ditch, trench, especially in fortification; (Anat.) groove, depression."—*Concise Oxford Dictionary.*

"A shallow depression, pit, a cavity; as the subscapular fossa, nasal fossa."—*Standard Dictionary.*

"A depression or pit."—Anthony's *Dental Dictionary.*

"A cavity with an orifice wider than the base. A broad shallow depression, furrow or sinus."—Harris's *Dictionary of Dentistry.*

"A round or angular depression in the surface of a tooth. Fossae occur mostly in the occlusal surface of the molars, and in the lingual surfaces of the incisors."—G. V. Black's *Dental Anatomy.*

"The concavity on the lingual surface of the incisors and cuspids. A depression on the occlusal sides, on the bicuspids and molars."—Ottofy's *Dental Dictionary.*

FISSURE

"A narrow opening produced by the parting of a substance, a crack, cleft, slit or furrow."—*Standard Dictionary.*

"A cleft or crack, a narrow opening, furrow. Cleft made by splitting or separation of parts; narrow opening, cleavage."—*Concise Oxford Dictionary.*

"A fault in the surface of a tooth caused by the imperfect joining

of the enamel of the different lobes. Fissures occur along the lines of the developmental grooves."—G. V. Black's *Dental Anatomy.*

"A groove, a cleft. In dental phraseology, a term applied to imperfections left by the imperfect fusion of the enamel of the cusps of the molars and bicuspid teeth."—Harris's *Dictionary of Dentistry.*

"A long and narrow cleft or opening in a bone."—Dunglison's *Medical Dictionary.*

"A cleft or opening. A fault in the enamel caused by the imperfect joining of the enamel of the lobes of the teeth."—Anthony's *Dental Dictionary.*

"A cleft, crack or fault in the enamel of a tooth."—Ottofy's *Dental Dictionary.*

GROOVE

"A channel or gutter in a bone."—Dunglison's *Medical Dictionary.*

"A natural or artificial hole or cavity in the ground."—*Standard Dictionary.*

Harris's *Dictionary of Dentistry* gives no definition.

"Pock mark."—Dunglison's *Medical Dictionary.*

"A linear channel or sulcus, especially on the surface of a tooth."—Anthony's *Dental Dictionary.*

"A channel or hollow."—*Concise Oxford Dictionary.*

"A furrow, channel, or long hollow."—*Standard Dictionary.*

"A long-shaped depression in the surface of a tooth."—G. V. Black's *Dental Anatomy.*

"A channel or furrow, a narrow elongated depression on a surface." Ottofy's *Dental Dictionary.*

PIT

"Natural hole in the ground."—*Concise Oxford Dictionary.*

"A sharp-pointed depression in the enamel. Pits mostly occur where several developmental grooves join; as in the occlusal surfaces of molars, and at the ending of buccal grooves on the buccal surfaces of molars."—G. V. Black's *Dental Anatomy.*

"A pit is a dip in the ground, a cup, basin, crater, vale, dent, or dell. A cup-shaped depression."—Roget's *Thesaurus of English Words and Phrases.*

"An indentation in the occlusal surface of a tooth as the result of faulty enamel development."—Anthony's *Dental Dictionary.*

"A hole, a hollow, an indentation, a sharp-pointed depression in the enamel surface of a tooth.—Ottofy's *Dental Dictionary.*

SULCUS

"Groove or fissure, as a groove on the surface of a tooth."—Anthony's *Dental Dictionary.*

"A furrow; a groove."—Harris's *Dictionary of Dentistry.*

"A furrow; a groove."—Dunglison's *Medical Dictionary.*

"Groove, furrow."—*Concise Oxford Dictionary.*

"A long, narrow groove, furrow, a ditch or slight depression, the inclines of which meet at an angle."—Ottofy's *Dental Dictionary.*

"A long, narrow channel or furrow; a groove."—*Standard Dictionary.*

"A notable long-shaped depression in the surface of a tooth the inclines of which meet at an angle. A sulcus has a developmental groove at the junction of its inclines."—G. V. Black's *Dental Anatomy.*

From a study of these definitions is it not advisable to give up the use of the word *sulcus?* There is not sufficient difference between the shape and form of a sulcus and a groove to make the use of both words practical or advantageous. According to the definitions given it is hard to distinguish between them. They both may be applied to the same anatomical part of a tooth. Should there be any difference in the mind of the writer and the reader as to which meaning is intended, confusion is more likely to follow. Each may be working for the same result and yet each may fail to recognize the similarity of purpose of the other.

Black and Ottofy have offered a distinction between a groove and a sulcus in that while a groove is rounded, a sulcus is V-shaped. This definition is not given in other dictionaries, and I am frank to confess that in clinical examinations I am not able to tell which is which. Furthermore, I do not see its value in practical work, and as these terms have caused and will cause unnecessary confusion, why not discard the work *sulcus* and retain only the term *groove?*

Would it not be better to use the word *fossa* to describe the large depression in the occlusal surface of molars bounded by the inclined planes of the cusps and an imaginary line drawn from the tip of one cusp to another? This would comply with the definition that a fossa is a round or angular depression in the surface of a tooth the orifice of which is wider than the base. With this mental picture the term *fossa* may be well applied to the lingual surface of a maxillary lateral and central. As an illustration of how the word *fossa* may be used, we would speak of the mesio-occlusal fossa of a maxillary first molar having a pit at the center of its base. The disto-occlusal fossa has a groove at its base, which groove extends over the lingual ridge and to and on the lingual side. Very often about half-way in the lingual groove a pit will be found.

The word *groove* should be applied to long, narrow depressions gen-

erally found on buccal and lingual surfaces and at the base of fossae on the occlusal sides.

In geology a fissured rock is imperfect. Fissures, flaws or cracks in rocks are not considered normal, even though their creation or cause is the result of natural laws. Nearly all writers on the etiology of dental caries refer to fissures as defects or flaws. While it may be true that the majority of first permanent molars have fissures, these fissures can hardly be classed as normal anatomical features like ridges or cusps or grooves, for the reason that they are the manifestation or result of an incompleted formation of the tooth. Therefore the term *fissure* should be used only when describing a fault or a flaw in the enamel. It should never be used when referring to grooves.

The word *cavity* should not be used when we mean caries. Cavity is an opening, a hollow place. There can be openings in the tooth in which there is no decay, but today we have no means of designating them, for if we speak of cavities, every one at once thinks that we mean decay.

If those who are interested in this subject will express their views, a better and more definite understanding for the meaning of these terms will be easily secured.

1 Madison Avenue.

[SANITY AT LAST!]

The root canal problem is still an open controversy and must be approached with an open mind. While a few years ago it almost seemed that root-canal filling would be added to the lost arts, the conscientious efforts of those who refused to believe every pulpless tooth was a menace have at last apparently turned the tide, so that today but few recognized leaders are willing to condemn unequivocally all pulpless teeth or to claim that no tooth can be successfully treated.

—CRANE.

Porcelain Manipulation

A Practical Technic for the General Practitioner

By F. R. Felcher, D.D.S., Chicago, Ill.

VII

Porcelain Manipulation

As previously stated, the amount of feldspar and flux in the porcelain determines to a certain extent the shrinkage of the porcelain in firing. The higher-fusing procelains have less and, likewise, the lower-fusing have more in the mix.

When properly condensed, high-fusing procelains will shrink about one-sixth. That is to say, if a mix of 2500-degree porcelain was condensed to its highest degree with most of the water drawn off, the finished bake would show this amount of shrinkage as a result. In the main we consider that the feldspar, flux and the slight amount of water are the only materials which really undergo any change. The silex or quartz and the kaolin remain practically infusible at the temperature to which the porcelain is subjected.

The water in the mix does not cause any change whatsoever. It acts merely as a medium to aid in holding the particles together while they are being built up. Therefore the more water that is allowed to remain on the built-up mass, the looser the particles in the mix, and naturally the greater will be the shrinkage after the work is fused. As a test, the following is advised:

Place some porcelain on a platinum matrix directly from the slab. Rasp it with the carver, and you will notice that the water will come to the surface. Now apply a small plaster pencil, made from any piece of plaster, until only the surface water is drawn off. Repeat the operation until, by rasping, no water appears on the surface. Now carve into the porcelain, and it will be noticed that the mass is well packed or condensed, and that it is carved easily.

Caution must be advised against applying the plaster pencil too long, as it will draw the water off too rapidly and defeat the purpose of condensation. Plaster is advised rather than blotting paper to avoid the possibility of a particle of paper getting into the porcelain mix and subsequently leaving a speck in the fused material.

Cleanliness is a necessity in porcelain work. Care must be observed by having the surroundings free from particles of dust or dirt. The hands should be clean, and it is inadvisable to smoke while manipulating a porcelain mix or build-up. Cigar or cigarette ashes often cause specks in the finished work. Clean slabs and instruments also are a necessity. Slabs used for porcelains should not be used for any other purpose. That is vital.

The mix on the slab is an important consideration, and a description of the proper method of mixing the porcelain on the slab will not be out of place here. Place some porcelain on the slab. Add some water from the dropper to this porcelain and with the palette knife mix it into a mass. Use enough water, but not too much. Apply a plaster pencil to the end of the mix and hold it there until the surface water is drawn off. Possibly little air bubbles will show on the surface at first, but will disappear after spatulation. Respatulate, and when the water comes to the surface again, apply the plaster pencil. Repeat until the mix appears like sand with the water drawn off, dull in appearance, but yet by manipulation a slight amount of water will come to the surface and the porcelain will adhere to other porcelain when applied. That is the way porcelain must be kept all through the

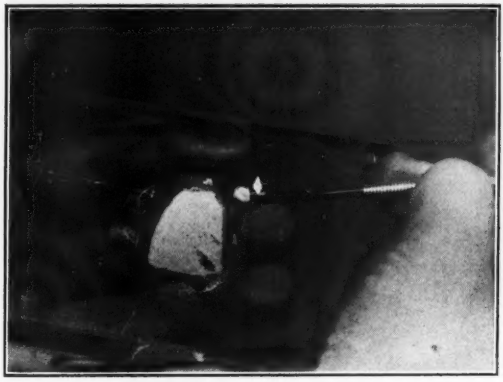


Fig. 6

build-up. If it gets too dry, due to evaporation, add a little water with the point of the carver to the build-up or a drop of water to the porcelain on the slab and respatulate. (Fig. 6.)

The technic of porcelain manipulation requires reasonable consideration. The elimination of bubbles is one factor, and the shrinkage is another. The aim in using high-fusing porcelains is to obtain not more than one-sixth shrinkage, free from bubbles, which are not always caused by the application of porcelain alone but may be due to faulty mixing on the slab. Therefore care should be exercised in eliminating bubbles by thorough spatulation.

The proper way to spatulate porcelains is by patting rather than mixing. Specks of foreign materials must not enter the mix. The possible abrasive action of the silex on the steel spatula may give off a

small particle of steel, which is apt to burn into a speck. For that reason patting is advised.

Condensing of porcelain on the matrix is accomplished by rasping, thus bringing the mass of porcelain into closer contact. Remaining air particles will then come to the surface. The thumb and forefinger are an aid in condensation and the drawing off of a small part of water. In applying porcelain over the matrix for a jacket crown this will help if used only on the foundation layer. This layer requires the greatest attention and in building it up care must be taken to be sure that it is well condensed, yet not too dry. The second layer must adhere to it when applied by the carver. It is difficult and hardly advisable to rasp porcelain while the second color is being applied, as a running together of the colors may result and interfere with the shade.

While somewhat larger quantities of porcelain may be applied on the foundation build-up and rasped for condensing purposes, only small amounts of the second layer should be applied. It is during the application of this layer that the shaping, contouring and carving of the work is to take place.

7616 Phillips Avenue.

(*To be continued.*)

[A DENTIST PLUS]

Dentistry is a form of health service of the highest significance. The treatment of diseases of the teeth and of the tissues of the gums requires not only that the dentist shall be an educated man, in the cultural sense, but that he shall know the fundamental medical sciences that other practitioners of medicine learn.

—PRITCHETT.

PERCY HOWE'S LETTERS
In Collaboration with "Brother Bill"

TENTH LETTER

Dr. Howe writes of the effect of diet upon the general condition of the mouth and the tissues supporting the teeth.

My dear Doctor:

Now that we have studied the effect of Vitamin-C-deficient diet upon the condition of the forming enamel, the dentin, the dental pulps, the dental arches of experimental animals, and upon the growth of the body in general, let us examine briefly the effect of such a deficiency upon the health of the tissues that support the teeth. I shall tell you only about monkeys, because in anatomy, physiology and pathology I believe them to be practically identical with humans.

Perhaps nothing is more strikingly characteristic of these animals, when living wild and upon the diet that they, in such a life, naturally

Fig. 53

A portion of Fig. 40, here shown to call attention to the quality of bone and its visibly close adaptation about the teeth. The teeth are so clean that they glisten.

select for themselves, than the continuous cleanliness of the mouth and the almost startlingly healthy appearance of its soft tissues. The gums are then firm and closely attached to the underlying tissues. The color is uniformly a light pink. The bony tissues are of excellent quality and support the teeth firmly. A portion of Fig. 40 is here repeated as Fig. 53 to show the bony tissue in the young monkey upon a normal diet. Any marked change in the condition of such tissues as these will surely be easy to recognize.

Before we go any farther, let me remind you that a balanced diet for either an experimental animal or a human is a diet that contains all

the materials necessary to maintain metabolism of the body, in proper proportions and in assimilable form. In other words, it is a balanced ration. Keep that term *balanced* in mind, because it is very important. The essential elements are usually described under the headings of proteins, fats, carbohydrates, sugars, mineral salts and vitamins. Obviously, you can unbalance such a ration by putting in too much of any one element or by reducing any one element. We have made many experiments with excesses as well as deficiencies, but the variations in diet of which I have been describing some of the results have been reductions of Vitamin C.

It is very easy for us to increase or reduce the quantity of Vitamin C, because the source of it in the balanced diet we employ is orange juice, of which we feed measured quantities to each animal. A guinea-pig weighing about 750 grams (about 26½ oz.) on normal diet gets 20 c.c. of this juice daily.

You may say at once that in feeding orange juice we are feeding more than Vitamin C, since it is also an excellent source of acids, mineral salts and other things. And you may add that when we reduce the amount of Vitamin C by reducing the amount of orange juice, we reduce also all these other things. You are quite right, but we do not believe that the other reductions are important, because we provide liberal quantities of all the other elements in the diet without the orange juice and depend upon the orange only for Vitamin C. Nor is the possible excess of vitamins and mineral ingested injurious when liberal quantities of orange juice are fed, since the animals visibly thrive.

In addition to the effect upon the teeth and growth that you have seen, upon reduction of Vitamin C, there are visible various important effects upon the tissues supporting the teeth. First of all, the saliva tends to become a little more viscid. Then a line of hemorrhagic color appears along the gingivae, which is followed by a recession of the soft tissues and then a recession of the alveolar process.

If the amount of deficiency is manipulated in just the right way, this resorption of the bony tissues will progress until the teeth are so very loose that if the animal chances to bite upon an unusually hard portion of the food or to bite very hard upon any portion, the tooth may be completely dislodged. If the animal is carelessly handled, the teeth may drop out of the mouth. Fig. 54 shows a localized resorption of the alveolus.

Fig. 55 shows a condition that is in striking contrast to the cleanliness of the healthy mouth of a monkey. There are heavy deposits upon the teeth, and the whole mouth is dirty.

Fig. 56 shows the mandible of a monkey after a diet-deficiency of Vitamin C for twelve weeks. Before the animal's death the mouth was very dirty and there were heavy deposits upon the teeth. There

Fig. 54

Localized resorption of the alveolar border of the jaw of a monkey on a deficient diet. It has so far been impossible to produce such a condition in monkeys on normal diet.

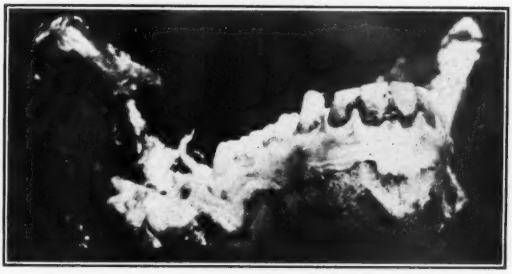


Fig. 55

Heavy deposits on the teeth of a monkey on a deficient diet. Comparison of this illustration with Fig. 53 shows how great is the change from the condition on normal diet.

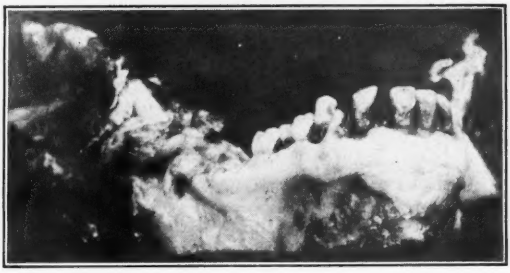


Fig. 56

After twelve weeks of deficient diet the resorption of the alveolar border was so extensive that the teeth sat in an open trough of bone. If the jaw was not carefully handled, the anteriors would fall out.

was marked resorption of the soft tissues, and the hard tissues had resorbed to such an extent that the teeth sat in a large open trough of bone. This recession could have been carried farther if the teeth could have been held in the mouth longer.

Fig. 57 shows one upper incisor and one lower incisor of a monkey which had suffered from a deficiency of Vitamin C. Two effects are very noticeable: (1) the labial surfaces of the teeth are almost entirely covered with heavy deposits, and (2) resorption of the tissues of the roots is very marked.

Now I want to write you a little about an element in the diet concerning which I have said practically nothing in previous letters—I mean, the roughage. Roughage, as I shall use the term here, means cellulose. It is not digestible and does not contribute directly to the nutrition of the body. It is found most liberally in the fibrous fruits

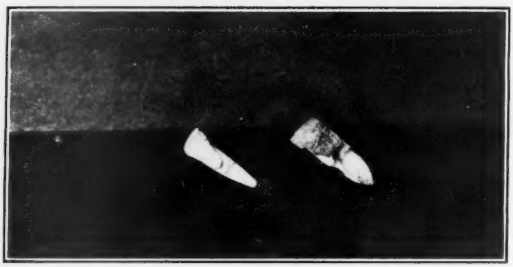


Fig. 57

Monkey teeth after a period of deficient diet. Note the heavy deposits and root resorption.

and vegetables*, and in these it forms an important part of the cell wrappings. It is so important to health that I am going to tell you a story about it.

When we got our first monkeys, we were not well informed as to what should be a normal diet. We went to places where monkeys were kept and we were told to feed them liberally on cereals. The ideas about the rest of the diet seemed to be very hazy. So we fed them cereals liberally and they declined from the state of vigorous health in which they had come to us to a state of health which was by no means vigorous. They did not seem to grow so well as they should, the forms of the dental arches changed as you have seen in Figs. 38 and 41, and the face forms changed. Intestinal troubles developed,

* Excellent sources of cellulose are oranges and lemons, if all the pulp and white skin are eaten; cabbage, celery, lettuce, tomatoes, etc.

intussusception occurred, there were very marked cases of hemorrhoids, and several of the animals died.

In those days it was our custom to keep the bottom of each cage covered with sawdust for sanitary reasons. We frequently saw the monkeys eating that sawdust, and some of them would hunt about for every clean particle of it. We thought that this must be the cause of the trouble, since obviously no animal is fitted with an internal mechanism for digesting sawdust. We therefore took the sawdust away and put in brown paper. The monkeys promptly ate all the brown paper.

One of the very worst offenders, a monkey which had eaten a great deal of sawdust and brown paper, met accidental death. On post-mortem the intestines were found to be in such strikingly healthy condition as to elicit the admiration of the dissecting room staff. When we had reflected sufficiently upon its habits of eating sawdust and brown paper and the healthy state of its intestines, it dawned upon us that perhaps the monkeys were eating the sawdust and paper in an effort to supply some lack in the food. We immediately began the feeding of roughage and observation of the results.

Because an experimental diet must be composed of foods of known chemical composition, as far as possible, and must be fed in quantities measured by size or weight, we chose for roughage a form of filter paper composed of chemically pure cellulose. This is supplied to us in strips 18 inches long by $\frac{1}{8}$ inch wide. A supply is kept constantly in the bottom of each cage in a dry state. A monkey will eat 250 such strips in 24 hours.

With the feeding of the filter paper the animals speedily improved in health. Vigor returned to the intestinal tracts, and the development of diarrhea and hemorrhoids promptly ceased. Post-mortems showed that where the animals without sufficient roughage had suffered from intestinal catarrh, with mucus covering the villi and finally penetrating them, with sufficient roughage there was no intestinal catarrh and the intestines were clean. It developed that the feeding of the right quantity of the right kind of roughage does three things of great importance, as follows:

(1) It lightens the food mass so that it can be more easily moved through the intestines.
(2) By dilatation it stimulates the tone of the intestinal muscles.
(3) Acting as a scrubbing brush, it keeps the villi clean.

You may wonder why I have told you this story about roughage and intestinal health in experimental animals, because it seems at first glance to be only distantly related to the health of the mouth and the teeth. We have no direct evidence as to the effect of intestinal ill

health upon the teeth, but we have evidence, which seems to us to be conclusive, as to an intimate connection between the health of the intestines and the health of the soft tissues of the mouth, at least in monkeys. When the intestine is healthy, the mouth is healthy and clean. When the intestine is unhealthy, the mouth is unhealthy and dirty. By that I mean that if a diet is normal in every particular, except deficient in roughage, we have intestinal and oral unhealth. By correcting the deficiency in roughage in a diet otherwise normal we get intestinal and oral health.

It is not difficult to draw a parallel between animals and humans on this matter of roughage in the diet. As I go to and fro in the trains and hotels and watch people eat, I cannot resist the conclusion that among the grievous dietary sins that they commit against themselves is the omission of a sufficient quantity of roughage. At breakfast I see them take orange juice, cereal, toast and butter, perhaps eggs, perhaps coffee. At noon they may take grapefruit, of which only the pulp is edible, and meat or eggs, more bread and butter, perhaps a little lettuce or a couple of slices of tomatoes, and a dessert. At night they have very much the same thing. During the whole day many a man weighing 150 or 160 pounds or more will not consume anywhere nearly so much roughage as would suffice for a guinea-pig that you can hold in the palm of your hand.

What is the other side of the story? Nearly every traveler carries in his or her bag some form of laxative, and perhaps 50% of all the medicine on all the family medicine shelves in the United States at the present time runs the gamut from pills to mineral oil. Perhaps you think you know the conditions of the soft tissues in the average mouth, but I am willing to wager that you have no adequate appreciation of the general conditions.

By the courtesy of Paul R. Stillman, D.D.S., let me show you pictures of four mouths which he found in a group of 150 high school boys from 16 to 18 years of age. The first (Fig. 58) is of a mouth in good health. The gum tissue is dense and firm and of the proper thickness, the color is a clear pink, and the gum outlines are unbroken.

The second picture (Fig. 59) shows a hypertrophied condition of the free margin of the gum. It is most pronounced about the lower teeth, but is better seen in the picture about the upper teeth. Strongly destructive forces are evidently at work here and are meeting with strong resistance.

The third picture (Fig. 60) differs materially from Fig. 59. Here destructive forces, which may be similar in character, are at work, but they are not meeting with the same kind of resistance. In this case there seems to be a wasting process, which lowers the resisting power.

Fig. 58

The first of four illustrations (Figs. 58-61) from boys of high school age, all shown by the courtesy of Paul R. Stillman, D.D.S. General good oral health.

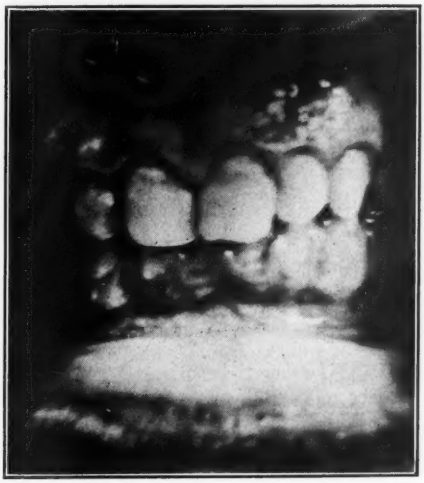


Fig. 59

Hypertrophic gum conditions on both jaws.

Fig. 60
Destructive forces not meeting the same kind of resistance as in Fig. 59.

Fig. 61
Advanced recession of the gum tissues. Probably serious nutritional unbalance.

The fourth picture (Fig. 61) shows a more advanced recession of the gum tissue than Figs. 59 and 60.

These last three pictures represent fairly well the conditions in an appalling percentage of the mouths of young people. After Dr. Stillman had told me about these, I showed them to Dr. McCall, who agreed with Dr. Stillman in the belief that the destruction here evident is not wholly the result of the action of local causes. They believe that there is a nutritional unbalance, and in Fig. 60 there may be a serious nutritional deficiency. Dr. McCall tells the story of two patients whom he saw in the clinic, one a girl of 11 years and the other a boy of 16, in whom pyorrhea was so far advanced that every effort to save the teeth

Fig. 62

If an orange is peeled in such way as to remove only the yellow oil cells, and all the white inner portion of the skin is eaten, the cellulose so necessary to proper intestinal function is secured.

was unavailing and all of them had to be extracted. Neither child had ever been seriously ill. The worst that had happened to either was that the girl had had measles. The diet in both cases was seriously deficient in the foods that are richest in vitamins, and Dr. McCall believes that the unhappy results were in no small degree due to diet-deficiency.

Think what the tissues of these young patients will look like ten years from now. Probably half of the dentists in America today are fighting to arrest recession in patients from 35 to 50 years of age apparently in fair health, and in many cases the fight is hopeless because the nutrition is not good.

I am not going to tell you what to do for your patients, because that is out of my special line, but Miss Hatch and I are satisfied that if the diet were made to include less protein and more roughage, the benefits to the tissues, not only of the mouth but of the whole body, might be great. Dr. Clapp, who is co-operating with me in the preparation of these letters, has reaped tremendous benefit to his own health by greatly increasing the roughage in his diet. He does it in a way which he finds very acceptable by eating all the white skin of oranges, removing only the yellow oil cells on the outside (Fig. 62), and cutting them up as shown in Fig. 63.

The health conditions that you find in the mouths of your patients are merely the oral indications of the condition of the tissues throughout the body. As the result of many years of experimental work and careful

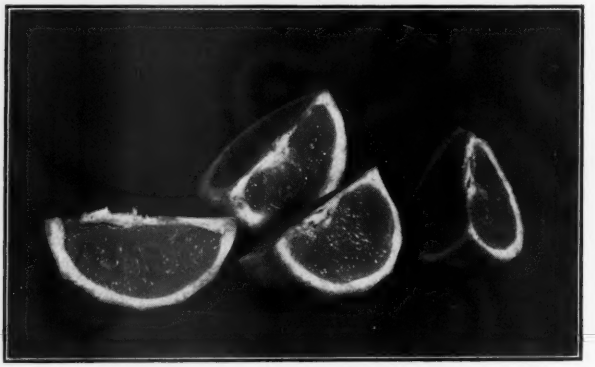


Fig. 63

If the sections shown here are cut in such way that pulp and cellulose are eaten together, they will be found very palatable. Many people benefit by from two to four oranges daily, eaten in this way, with a glass of water for each.

observation of monkeys, which dentally are almost identical with humans, I am convinced that pyorrhea, concerning whose origin there has been so much research and discussion, is merely the oral expression of the results of long-continued dietetic errors. Again and again, here at Forsyth, we have produced in monkeys within a period of six weeks all the classical symptoms of acute pyorrhea by drastic diet deficiencies and then cured them completely in ten days by balancing the diet.

More and more frequently do I hear periodontists make this statement: "The healthy human mouth tends to stay clean; you can hardly keep an unhealthy mouth clean. Good office and home care are

extremely important, but crushing (fibrous foods) is an excellent support for brushing (teeth)."

If you can tell your patients, both young and old, the story of the monkeys and the roughage in such way as to insure conviction and action, it may prove to be of great benefit to their health in many ways.

Yours very truly,

Percy R. Howe

[THE SEARCH FOR KNOWLEDGE]

The less a man knows, the more content he seems to be with his intellectual capacity and outlook. It is because of the desire on the part of scientific men to learn through experiences of their own, as well as that of others, that orthodontia has been brought to its present standing. We owe it then to ourselves and to future generations to do what we can to further a greater increase of such knowledge. "So little done, so much to do."

—WEINBERGER.

Surgical Prosthesis*

By Vethake E. Mitchell, D.D.S., New York, N. Y.

Surgical prosthesis is a branch of dental prosthesis and has to do with the construction and use of mechanical appliances and artificial restorations for the treatment of those cases intimately concerned with surgery. The treatment of fractures of the jaws with splints, correction of deformities of the jaws by mechanical means, restorations of portions of the jaws or face because of accident, disease or surgical interference, and restorations for congenital defects such as cleft palate, all come under this head.

Fractures of the jaws are so numerous and so varied in character that it is impossible to present a method by which all cases can be treated. However, all effort should be centered on the reduction of the fracture and a complete stabilization of the jaws, regardless of the means employed. This should be done as soon after the injury as possible, for any delay interferes with the normal healing process by first intention, prolongs the time of repair and often is the source of infection.

In all cases where there is a sufficient number of teeth in each fragment for support, a simple cast cap splint of gold, silver or aluminum cemented to the teeth is the most efficient method. Bandages do not stabilize and wiring of the teeth should be resorted to only in cases of emergency.

If through loss of teeth or the position of the fracture it is found necessary to use the occluding teeth for stabilization, a simple cap splint, on both maxillary and mandibular teeth, with buccal tubes and pins should be used, as the removal of the pins will allow instant inspection of the parts.

When a resection of the mandible is to be done, impressions are taken, splints made in sections with tubes and pins, the sections cemented in position before the operation, and all that remains is for the surgeon to slip the pins in position after his work is completed.

In all cases of restoration it is necessary to have a thorough knowledge of the anatomy and the function of the parts to be restored, an understanding of normal conditions, the mechanical ability to devise an appliance for each individual case, an unlimited amount of patience and perseverance to work out the construction and the practicability of the apparatus.

When surgical operations are contemplated, co-operation of the dentist and the surgeon may often avoid many of the awful deformities that result when operations are performed without preliminary mechanical preparation. In the healing process of all soft tissue, when the

* From a clinic before the First District Dental Society, New York, December 7, 1926.

bony framework has been removed, a great contraction of the tissues occurs. It is frequently possible to prevent this by means of a properly constructed appliance, inserted either before or immediately after the operation.

When the palate is perforated through accident, disease or surgical interference, the speech is badly affected, but it is immediately restored when the proper appliance is inserted.

In what is generally known as *congenital cleft palate* we have an entirely different condition. Patients with this defect have never had a normal speech mechanism, consequently they have never spoken in a normal way. In our efforts to supply this mechanism by means of an artificial substitute it is necessary to teach the patient how to use it.

A year ago I spoke to you on this subject and presented patients showing results of treatment by artificial restoration.* The fundamental principle of these restorations is to restore the tissues to as nearly normal as possible in size and form and in such manner as to allow their normal functioning. When this has been accomplished and proper training has been given, the result must necessarily be satisfactory.

I want to say something about the etiology of congenital cleft palate. What is the cause? This question has been asked so often by patients, parents of patients and others during the past twenty years that it has led me to make some effort to try to solve the mystery. Until recent years all that I could do was to name over the possible factors, as proposed by the different writers on the subject, that might be the cause, such as heredity, maternal impressions, etc., but this never seemed to me quite a satisfactory answer. While Dr. Davenport of the Carnegie Institute of Eugenics claims that by records they have proved heredity to be the cause, he says also that they "have been unable to find the key." I also have many records, some of which lead to heredity finding, but more show no heredity activity whatever. So, as yet, I am not convinced nor do I believe that nature, unhampered, makes such blunders as to produce this defect, as our good friend Dr. Kells seems to think. After all, is it not entirely a matter of development?

"The great majority of babies born in the world are physically perfect, and what happens to them in after life is due to environment." This quotation is from an article by a physician, and while there are no records to verify this statement, I believe it is very true. How about most of those born imperfect? Can this be laid to heredity? From the more recent scientific investigations in growth and development we must begin to reckon with environment from the time of conception, not from birth. A physically fit mother during the period

* See *The Dental Digest*, October, 1926, page 665.

of gestation would insure a physically fit offspring, but how few perfectly fit mothers there are!

Professor Percy R. Howe has demonstrated that bony development can be controlled by the diet of the child. How much more necessary it is that the fetus be supplied with proper bone-builders!

From our present knowledge of the function of the endocrines is it not possible that an insufficiency of glandular activity in the mothers may account for the lack of bony formation of the palate in the fetus? While it is true that the fetus will take from the mother what it needs for its development, it certainly stands to reason that in case of an insufficient supply it also must suffer. I believe that when we know more about the internal secretions and their functions, many of the mysteries hitherto will be solved.

Associated with many cases of congenital cleft palate will be seen other deficiencies and deformities of the bony frame. The diet and care of mothers during pregnancy, in my opinion, is of the greatest importance in bringing about normal healthy offspring.

17 East 38th Street.

[SURER DIAGNOSIS]

No dentist can make an ocular, instrumental interproximal examination that equals a roentgen ray, and the quicker we admit this truth the better. It is absurd to blame men for not finding proximal cavities by instrumental and ocular methods. We get nowhere by casting blame; we progress by admitting truths.

—RAPER.

Anesthesia for Pulp Removal and Cavity Preparation*

By F. R. Adams, D.D.S., New York, N. Y.

I have been surprised on several occasions of late to find that a large number of the profession are not familiar with the technic for submucous, subperiosteal and pericemental injections.

I am emphasizing particularly the technic for pericemental injection. This method can be used on all of the teeth, but the infiltration method is limited to the upper incisors and bicuspids, and sometimes the lower incisors. The younger the patient, the better the chance of success in the submucous or subperiosteal injection. In very young patients this method can be often employed successfully for all of the teeth. An examination of the maxilla and the mandible at different ages will disclose the fact that the porosity of the bone is much greater in the young.

The pericemental injection is one which most of the authorities, notably Fischer, Reithmüller, Nevins and Smith, discredit on account of "pain following the injection" and "danger of infection." Personally, I have been using the pericemental injection for a number of years and have never had a case of pericementitis following the injection. This method should not be used where pyorrhea, pericementitis or alveolar infection is present. In these cases conductive anesthesia is preferable, supplemented by pressure, phenol being used if the pulp is to be removed.

The technic for the pericemental injection is as follows:

For lower incisors, place the needle on the labial surface of the tooth at the gingival margin, with the opening of the needle toward the tooth and the needle parallel with the long axis of the tooth, and carrying the needle down between the gum and the tooth until the process is felt, being careful not to injure the gingivae. When the border of the process is reached, use force enough with a very slight rotary movement to engage the process, all the time keeping the needle in contact with the tooth so that the needle passes between the process and the tooth, but only to sufficient depth so that resistance to the plunger is offered. Then deposit about five or ten drops of the solution (2% novocain or tutocain), the amount depending upon the resistance offered. The more the resistance, the less the quantity of solution required.

The lower bicuspids usually require two injections, these to be made on the mesial and distal surfaces of the teeth in the interproximal space

* From a clinic before the First District Dental Society, New York, December 8, 1926.

following the previously described technic. The lower molars require an injection at the base of each root, the needle in all cases being parallel with the long axis. This should be made mesially and distally. In making the distal injections of the lower molars it is better to use a needle placed at an angle, either a curved needle such as the ¼-inch, 23-gauge curved needle or an angle attachment upon the syringe. The upper molars require an injection for each root. The mesial and distal injections alone will not completely anesthetize the tooth.

This method, in my hands, is much superior to ethyl chlorid for cavity preparation. The pain caused by the ethyl chlorid is considerable, while the pericemental injection should be absolutely without pain. It has the advantage also that the anesthesia lasts long enough to allow time for a thorough preparation of the cavity. Great care must be used in excavating to avoid overheating the tooth or approaching too close to the pulp.

The gingival space should be thoroughly cleaned with a 2% solution of sodium ricinoleate or with tincture of iodin before injection is made.

8 West 40th Street.

CORRECTION

In the September issue, on page 630, "5⅞ platinized gold" should read "5% platinized gold." On page 631, "The inlay, wrapped in tissue paper, is set in the die," should read, "The inlay is set in the die, wrapped in tissue and . . . "

Special Teeth for Cross-Bite Cases

By Alfred Gysi, D.D.S., Zurich, Switzerland

Professor of Prosthetic Dentistry, University of Zurich
(Literary Collaboration of George Wood Clapp, D.D.S.)

FIFTH ARTICLE (Continued)

BALANCE IN NATURAL AND ARTIFICIAL DENTURES

(Continued)

Confusion in Writing and Reading

Much confusion occurs in writing and reading the literature of denture prosthesis because the movements and their significance are opposite in the articulator to the movements of the human mandible. In the articulator the maxilla moves. In arranging artificial teeth the movements away from central occlusion are most easily and naturally used as guides, while in nature the significant movements practically always occur during the return to central occlusion.

Extreme Mandibular Movements

Starting from the position of central occlusion, for purposes of description the movements of the mandible may be divided into four groups. Each movement has two parts, one away from central occlusion, the other the return to it. These groups are (1) the simple opening movement, (2) the protrusive movement, (3) lateral movements, meaning the movements from right to left and from left to right, and, rarely, (4) a retrusive movement. There are many combinations of these movements.

Intermediate Movements More Frequent

It should be borne in mind also that the simple and extreme movements that have just been mentioned are the least frequent of the mandibular movements, but that they are the only movements that can be clearly described. One might describe the movements of one's arm by saying that it can be extended vertically upward or downward or horizontally forward, backward, to the right or to the left. But for each of these extreme movements there are many intermediate movements which may present elements of all these but which it would be very difficult to describe exactly. So it is with the mandible. It is formed to permit extreme movements, and those most easily made are intermediate among extremes and present elements of all four groups of movements. These intermediate movements cannot be briefly and clearly described.

Dentists who cause patients to trace the Gothic arch as a means of registering central occlusion have observed that few patients can trace a Gothic arch in the beginning. Most of them begin with the registration of intermediate movements and achieve a definite arch only after some exercise.

Possible Intermediate Movements

When the mandible is in central occlusion, the condyles are supposed to be at rest in the deepest parts of the fossae and the teeth have the maximum contact. All the movements which the mandible can make from this position are more or less protrusive as regards the sagittal plane, except the straight opening and closing (Fig. 32). The movements which present the smallest quantity of the protrusive element are known as the extreme lateral, to right or to left. When the mandible is moved forward enough to take the condyles out of the fossae, upon the eminentiae, or when the bite is opened enough to carry the condyles forward in the same way, the mandible will be able to make many forms of movement between the extreme right and the extreme left lateral. It may record movements in the form of circles or at right angles to the sagittal plane.

Mandibular Movements Which Are of Practical Value

Of the many possible mandibular movements, only a few are habitual or of practical value for the arrangement of artificial teeth in mastication. These are the direct protrusive, by means of which food

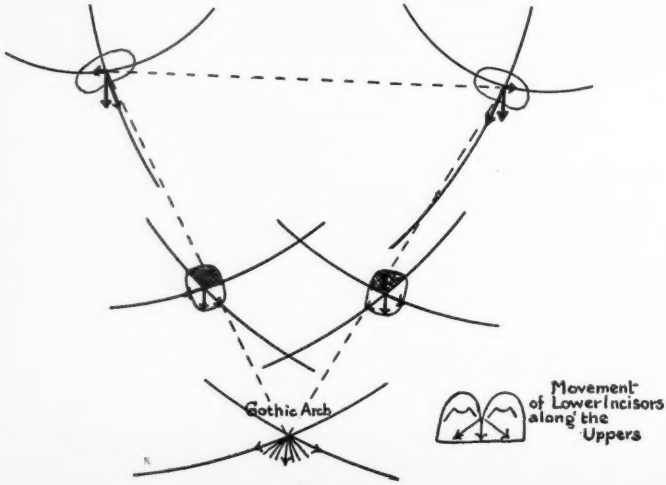


Fig. 33

Fig. 34

Detail of a Gothic arch tracing at the incisor point. The arrows show the direction of movement of the mandibular incisor point.

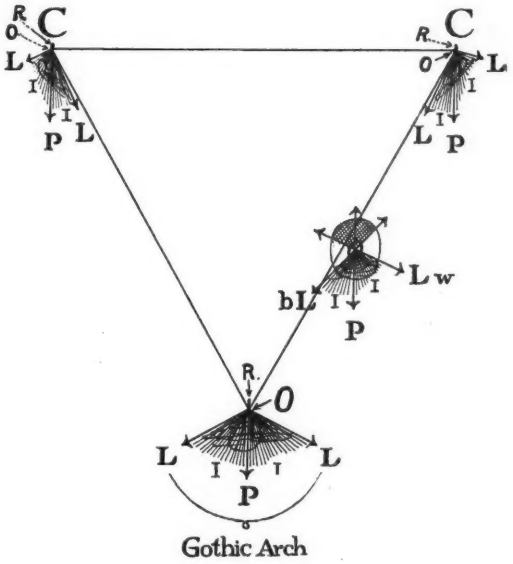


Fig. 35

Diagram of representative mandibular movements. The locations, relations and different forms of movement are indicated by letters, as follows:

C—Condyle.	I—Intermediate.
W—Working side.	L—Extreme lateral.
B—Balancing side.	P—Protrusive.
O—Central occlusion.	R—Retrusive.

is incised, and the backward, by which the mandible returns from its incising excursion; the combined protrusive and lateral, by which food is taken between the teeth; the combined retrusive and lateral, by which the mandible returns to central occlusion; and, rarely, a slightly retrusive movement from the position of central occlusion. The directions of these movements are shown by the arrows in Figs. 33 and 34.

While it is easiest and most practical to record the Gothic arch at the mandibular incisor point, Gothic arches are traced during these movements by every part of the mandible. These are concentric and may be reproduced from the side-bite axis which I long ago described. While these Gothic arches differ in form at different parts of the mandible, there is nothing in any one of them that antagonizes the movements of the others. Fig. 35 presents Gothic arches as traced by the condyles, the first molars and the incisor points, when the rotation areas are located as shown.

Habitual intermediate movements may be more numerous and important in mastication than extreme movements, but at certain stages of his work the extreme protrusive and lateral movements are more important to the plate-worker than the intermediate movements, because they can be recognized, identified and reproduced, and by means of them artificial teeth can be articulated. Artificial teeth arranged to harmonize with these extreme movements will permit not only the extreme movements which occasionally occur in mastication, but also the most efficient forms of the more frequent intermediate movements. Artificial teeth cannot be articulated by means of the intermediate movements alone. It was the unconscious recognition of this fact that led the profession long ago to form the habit of arranging teeth for extreme movements with the expectation that they would articulate in all the included movements.

This predominance of intermediate movements should be remembered when the finished dentures are being ground in the articulator. If the construction of the articulator permits dentists to grind the teeth to lateral movements only, patients will be hindered by errors of tooth form in the cuspid region during all movements which contain a protrusive element. As these are probably the most important of all masticating movements, the form of the articulator and the practice of dentists should include grinding for *all the movements possible within the Gothic arch.*

Direction of Tilting and Balancing Forces in Simple Closing Movements

Fig. 36 shows a diagram of a frontal section through natural maxillary and mandibular second molars and the supporting alveolar structures, as it was traced from a skull. The interalveolar crest line

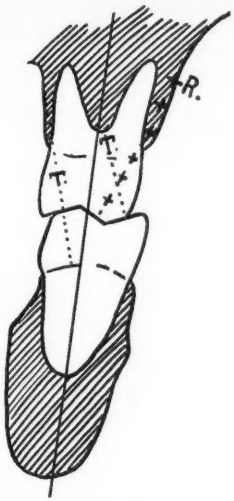


Fig. 36

Diagram of a frontal section through natural maxillary and mandibular second molars and the supporting bony tissues, traced from a skull.

is drawn through the centers of the alveolar structures and the roots without regard to the fossae of the teeth. The dotted lines show the direction of the tilting force when there is food between the teeth before they come into contact. The tilting force (T) applied to the center of the buccal working facet of the maxillary molar falls not outside the alveolar structures supporting the teeth. This is an ideal arrangement of a force falling not outside the base of a structure and has doubtless been slowly evolved, through centuries, as a means of exerting great oblique force without tissue destruction. The tilting force (T) applied to the center of the lingual working facet of this tooth falls upon the supporting structures at about the center of the tooth. It is probable that the application of this tilting force on the maxillary buccal working facet is usually balanced by the application of force (R) on the lingual working facet, but if by chance a hard particle of food rests on the buccal working facets, the tilting force will become active in these lines. It may also become active when the artificial molars are so badly arranged that the lingual cusps are not in contact during lateral occlusion. The force (R) applied to the balancing facets falls well inside the dental arch. When the teeth are in working occlusion, the resultant of the tilting and balancing forces is probably in the line of the long axis of the teeth-supporting structures, and the tooth is pushed into its socket and not tipped in any direction out of position.

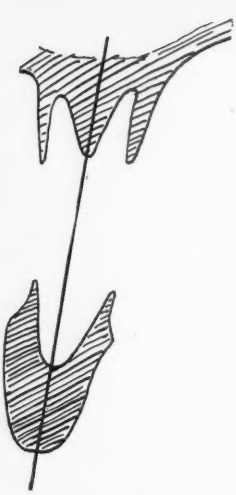


Fig. 37

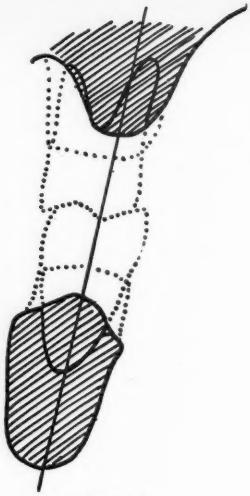


Fig. 38

Fig. 37

Tracing of the alveolar structures shown in Fig. 36, immediately after extraction of the teeth.

Fig. 38

The same maxilla and mandible as in Fig. 37, when absorption is about half complete. Note the shifting of the maxillary crest toward the median line and the passage of the interalveolar crest line through the principal fossa of the mandibular molar instead of near the tip of the buccal cusp, as in Fig. 36.

Fig. 37 shows the alveolar structures immediately after the extraction of these molars.

When resorption is about half completed, at the stage shown in Fig. 38, the form of the bony ridges and their relations to each other are as shown by the shadowed areas in this picture. It will be noted that the interalveolar crest line is inclining steadily more inward as it goes upward from the mandible.

In Fig. 39, the natural teeth and the supporting tissues as they were before extraction are outlined in dots. The extent of vertical and lateral resorption can be seen. Because of this resorption the principal fossa and the buccal cusp of the maxillary first molar are now outside the crest of the maxillary ridge. The dotted line in this figure, which is similar to the outline in Fig. 36, shows that if the natural teeth were in the positions shown, the tilting force (T) applied in mastication would fall far outside the buccal wall of the maxillary ridge as it now

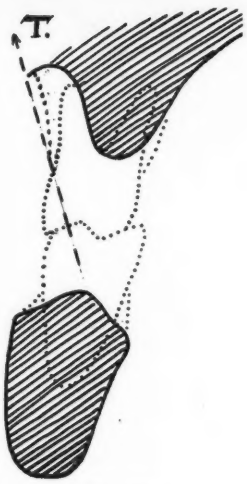


Fig. 39

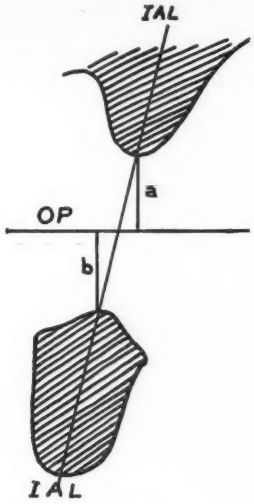


Fig. 40

Fig. 39

The dotted outlines of the natural teeth are traced in the positions they occupied in Fig. 36, but the relation of these teeth to the ridges as modified by resorption is very different from what it was in that picture. This would expose the maxillary teeth to a tilting force against which there is now no tissue support.

Fig. 40

The lines *a* and *b* show the axes of artificial teeth set perpendicular to a hypothetical occlusal plane (OP) when resorption is about half complete. Teeth set thus would not even occlude.

is. This condition is quite unlike that in Fig. 36, in which an oblique force fell not outside the base, and it is doubtful if the original position of the natural tooth could be maintained.

Balancing and Tilting Forces Applied to Artificial Teeth

Fig. 40 shows the same alveolar ridges as Fig. 39, and between them a hypothetical occlusal plane. If the artificial teeth were set vertically above each ridge, their vertical axes would be in the lines *a* and *b*, and the teeth could not meet in normal articulation. It is therefore desirable to set the teeth with their vertical axes in the interalveolar crest line (IAL) as that line is shown in this drawing.

Fig. 41 shows normal-bite maxillary and mandibular molars set upon the alveolar ridges in such way that the tip of the maxillary lingual cusp is practically in the interalveolar crest line and the occlusal

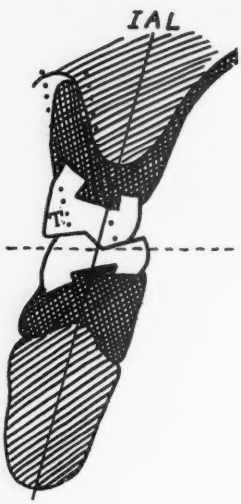


Fig. 41

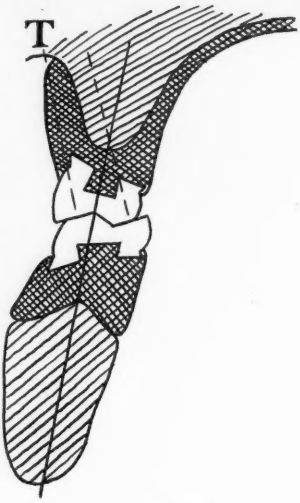


Fig. 42

Fig. 41

Artificial teeth set with the maxillary lingual cusp practically in the interalveolar crest line and with the buccal cusp elevated above the occlusal plane. The consequences are explained in the text.

Fig. 42

Artificial second molars set with the deepest part of the principal fossa of the maxillary tooth in the interalveolar crest line. The advantages are explained in the text.

surface is so inclined that the maxillary buccal cusp is elevated a little above the horizontal occlusal plane. The mandibular molar is set to articulation. The direction of the tilting force (T) in mastication is shown by the dotted lines. They are practically identical with those shown in Fig. 36. Because the maxillary ridge has been resorbed on the buccal wall, the force falls far outside the maxillary ridge and even outside the margin of the artificial denture, so that there is no support against this line in the direction of the force. Artificial dentures made in this way are generally dislodged by the tilting pressure upon the maxillary buccal cusps.

In Fig. 42, artificial molars of my design are set in the same inclination as in Fig. 41, but more directly below the maxillary ridge, so that the principal fossa of the maxillary first molar is directly in the interalveolar crest line. The direction of a tilting force is shown by the dotted line and is more favorable than in Fig. 41. This setting

increases the stability of the dentures, but it necessitates placing the mandibular molar so far inside the crest of the mandibular ridge that there is not sufficient space for the tongue. In its function of forcing food between the teeth during mastication, first on one side and then on the other, the tongue is likely to lift such dentures out of position repeatedly.

(To be continued)

Palestine Catastrophe

The Dentists Committee of the University of Palestine, of which Dr. Herman E. S. Chayes is Chairman, is making an appeal to the profession for funds for Palestine University, which was seriously damaged in the recent earthquake in the Holy Land. In order that every member of the profession may find it convenient to contribute, the Committee is soliciting small subscriptions.

The Committee is also accepting memberships at $5.00 per annum for the purpose of erection and maintenance of buildings for the Dental Department. Your assistance will be very helpful. Checks should be mailed to Dr. Samuel Abraham, Secretary, Dentists' Committee of the University of Palestine, 111 West 86th Street, New York, N. Y.

Oral Surgery In Practice

By James L. Zemsky, D.D.S., New York, N. Y.

Attending Surgeon, Department of Oral Surgery; Chief of Clinic and Director, Surgical Periodontia Department, Midtown Hospital, New York

(*Continued from September*)

FRACTURES (Continued)

Bandages

¶169. In an emergency, fixation may be secured effectively by means of the Barton, Gibson or four-tailed bandage and their various modifications. (See Figs. 149-150.)

¶170. An abscess formed in a fractured case should be treated by an incision for the purpose of evacuating the pus present and establishing drainage. No curetting, however, should be performed. Nature throws off infected bone spicula without any interference with physiologic healing.

¶171. Those pieces of bone that have any attachments must not be removed, for frequently such fragments heal into the bone and thus prevent loss of substance, avoiding a deformity.

Fig. 149

A four-tailed bandage in position. It is made from a piece of muslin, 4x36 inches. Each end is split and torn to about two inches from the center, where a small slit is made. In applying the bandage the slit is placed over the symphysis, and the lower ends (1) are carried to the vertex and tied there, while the upper two ends (2) are carried directly back and knotted over the nape of the neck. All the free ends are then tied together (3), which finishes the bandage. This is a simple and effective means of temporarily fixing fractures of the mandible. (See ¶169.)

Fig. 150

Application of a Barton bandage to a patient who has sustained a fracture. A rolled muslin or gauze strip, two inches wide is used, the end of which is applied at the vertex of the head (1), then to the cheek (2), beneath the chin (3), to opposite vertex (4), then to the occiput (5), and to the front of chin (6). (See ¶169.)

Comminuted Fracture of Mandible Healed Without Treatment

False Union of Fractured Mandible Requiring Surgical Operation for Correction

Tooth in Line of Fracture Acting as Foreign Body

¶172. Teeth lying directly in the line of fracture do not have to be extracted unless there are infected teeth, which naturally hinder the process of repair, acting as foreign bodies. (See Figs. 151-156.)

¶173. Continuous discharge of pus and presence of pain in fractures suggest the possibility of acute osteomyelitis.

¶174. Force must not be employed to dislodge and remove a sequestrum. It is much more advisable to wait until it is exfoliated.

¶175. No attempt should be made to reduce a fracture without administering some form of anesthetic. Conductive anesthesia may quite often be used advantageously for this purpose.

Fig. 151

Roentgenogram of the mandible of a patient, 46 years old. It shows lines of fracture running transversely in different directions through the body of the mandible. Note that the canine is in the line of fracture; also, that there is an island of bone between the apex of the canine and the lower border of the jaw. The teeth as seen here are in good occlusion, hence no reduction of the fragments was necessary. No extraction nor any other surgical interference, such as removal of the loose fragment, was resorted to and the patient made an uneventful recovery. (See ¶172.)

Fig. 152

Photograph of a young man, aged 26, who presented a number of scars on the face and a swelling of the cheek. History of the patient reveals that a few months ago he met with an automobile accident, sustaining a number of bad cuts and lacerations on the face and bruises all

over the body. In spite of the persistent swelling, as shown in this picture, and a bad occlusion of the teeth, as shown in Fig. 153, no diagnosis of fracture of the mandible (see Fig. 154) was made by the surgeon at the hospital where the patient was treated. (See ¶172.)

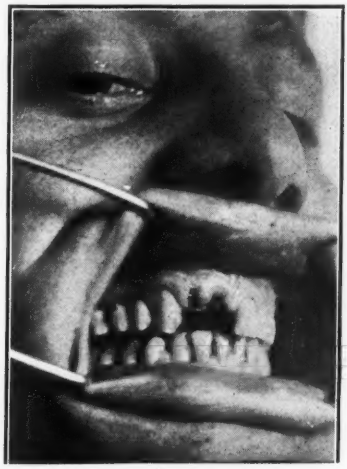


Fig. 153

Photograph disclosing a lack of articulation of the teeth of the patient shown in Fig. 152, whose fractured mandible was not properly treated, due to improper diagnosis, resulting in a false union. (See ¶172.)

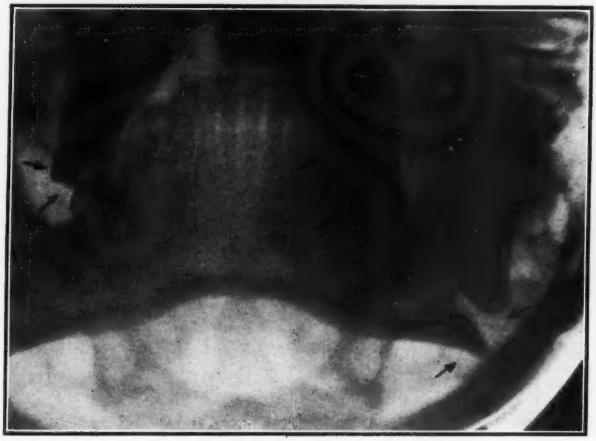


Fig. 154

Roentgenogram of the patient shown in Fig. 152. This indicates that the patient had sustained a fracture through the angle of the mandible on the left side. It shows also lack of occlusion (see arrows). At the time this roentgenogram was taken there was some union of the fragments, but the patient was not able to masticate food properly. He came to the

writer for advice, and after his condition had been diagnosed, he was advised to undergo an operation for the purpose of resetting the fractures. He readily submitted to the treatment. Under local anesthesia the partly healed fracture was refractured. At the angle was found a fragment which could not be properly coaptated and therefore had to be removed. The teeth were set in proper occlusion and wired. (See ¶172.)

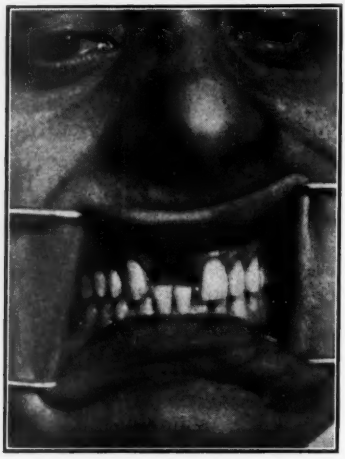


Fig. 155

Photograph of the patient shown in Figs. 152-153, which reveals an absolutely normal occlusion (compare with Fig. 153). This photograph was taken seven weeks after the treatment was begun. The wires were removed two weeks before this photograph was taken. (See ¶172.)

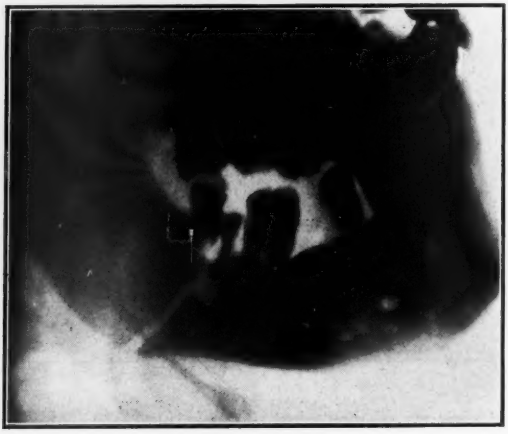


Fig. 156

Roentgenogram of the mandible of a patient 38 years old, who sustained a fracture at the angle of the jaw. Despite the fact that the jaws

were wired for nearly two months, no union followed. The roentgenogram reveals a wisdom tooth in the line of fracture. Since almost two months elapsed from the time the jaws were wired and no union took place, there is no doubt that the tooth lying in the line of fracture acted as a foreign body and interfered with the process of normal union. Extraction of this tooth is necessary in order that union may take place. (See ¶172.)

Fig. 157

PATHOLOGICAL FRACTURE

Roentgenogram of the right side of the mandible of a patient, 39 years old, who presented with a swelling of the lower jaw. History revealed that he had been suffering from pain for more than five months. The roentgenogram discloses a pathological fracture, there being a loose sequestrum between the separated fragments of the jaw. The case should be treated by fixation of the jaws with wires, removal of the sequestrum, and drainage through extra-oral and intra-oral incisions. The arrows point to the swelling of the soft tissue, due to infiltration with pus, and to the sequestrum.

¶176. It is well to remember that even though there is a firm union following treatment of a fracture, the result should be regarded as a complete failure if occlusion and normal function have not been effectively restored.

¶177. While a perfect reduction may be desirable, it is not absolutely necessary. In fractures excellent results are obtained without perfect coaptation of the fractured bone surfaces.

¶178. Extraction of good teeth for the purpose of feeding the patient is not permissible. A diet of high nutritional values, consisting of liquid and semi-liquid food, can be sipped through the interdental spaces and thus make unnecessary the sacrifice of good teeth.

¶179. Interdental splints are to be used only when wiring is contraindicated for some reason.

¶180. If neoplasms, syphilis and infection are excluded in the case of a fracture presenting delayed union, thyroid extract should be administered, according to some writers. This will do no harm and may do some good.

¶181. Certain cases of displaced fractures at the neck of the condyle may be satisfactorily treated without either an operation or complete immobilization. An elastic band beneath the chin and fastened to iron posts supported by a plaster of Paris cap encasing the head is all that is necessary.

Fractured Roots

¶182. Teeth with fractured roots should be removed, for there is no therapeutic nor surgical method that can save them. (See Figs. 158-161.)

Fig. 158

Photograph of a girl, 24 years old, showing very marked swelling of the left side and edema extending to the eye and closing it completely. The swelling developed as a result of a direct blow upon the mouth in an accident. The maxillary left central, lateral and canine became loose, and when radiographed the teeth were found to be fractured. (See Fig. 159 and ¶182.)

Fig. 159

Fig. 160

Fig. 159

Roentgenogram of the left anterior maxillary teeth of the patient shown in Fig. 158. This shows a transverse fracture through the roots of the central and lateral incisors and an oblique fracture through the root of the canine. (See ¶182.)

Fig. 160

Roentgenogram showing fracture of a left maxillary incisor without displacement of its fragments. (See ¶182.)

Fig. 161

Roentgenogram showing a transverse fracture through the middle of the root of the right maxillary incisor. There is a very slight displacement of its fragments. (See ¶182.).

335 East 149th Street.

(To be continued).

Togo's "Discursions"

Mr. Editor of Dental Magazine containing some Hope and Occasional Illustrations

Hon. Sir:

Delicious but discolored days of Fall denote return from delightful but expensive vacation of several Doctors of D.D.S. who now contemplate greatly depleted bank balances if any, and Closed Season on Cash Collections.

Necessities for additional cash income abound on every hand while opportunities for overtaking some seem to have largely vanished around adjacent corner just previous to personal arrival of enthusiastic searcher. What to do under distressing circumstances herewith enumerated is perspiring question in minds of many D.D.S. and other members of the intelligentsia when present at joint meeting assembled in Country Club Locker Room or elsewhere.

Considerable experiences in assorted offices where Dentistry is produced and delivered to Hon. Public as means of precarious livelihood permit broadcasting of following brain thoughts based on experience from side lines of unbiased personal observation.

Many remarkable changes have become observable during recent years. Hon. Mr. and Mrs. Public have performed sudden and unanimous stampede from suspenders, dress shields, corsets, and long skirts to belts, depilatories, free movement and wide range of increase in areas of legal visibility! Almost equalling in suddenness and intensity has been recent demand for good looking teeth on smiling line and good health based on correct dentistry is matter of increasing importance to all inhabitants in land where nearly everyone owns slight automobile in hope of escaping from some one else enjoying Halitosis! In spite of greatly increased public appreciation and enlightened demand Hon. Dental profession is still largely ignoring magnificent opportunities for better Public Services and increased Personal Profits by continuing to install inferior amalgam fillings at former debilitated prices instead of 1927 model of properly extended and anchored gold inlays at considerable advance. Any competent operator not over 87 years can presently become capable of learning how to prepare properly approximal cavities in molar and bicuspid teeth and make wax pattern for considerable inlay of G. V. Black dimensions in 25 to 30 minutes of industrious effort, while Hon. Patient is experiencing only slightly disagreeable sensations. Thank you! Intelligent assistant can produce complete casting, and setting of same can be accomplished in less than 30 additional minutes; fee for same readily obtained equals ten per-

fectly healthy iron men in majority of cases though slight variations below and decided variations above may be occasionally noticed; under circumstances enumerated satisfaction of Hon. Patient equals almost 100% whereas similar cavities if properly packed and finished with amalgam would conserve equal or greater operating time, command decidedly reduced fee, and only partly please vast majority of patients who are today looking for bigger and better things from Dental Profession.

Recent employer enjoying benefits of Japanese assistance places gold inlays in all approximal cavities in molar and bicuspids; performing such services for patients from all departments of life in moderate sized City which includes plentiful sprinkling of truck drivers, motormen, stenogs, housemaids, Woolworth employees and other Human etc.

Inlays are made embodying all modern improvements including wide extension of cavity margins, correct occlusion and contact, heavy occlusal step and good finish. Patients from all classes previously enumerated are highly pleased and willing to contribute monthly payments if necessary to meet production costs for excellent results obtained. Important fact worthy of mental digestion is that said D.D.S. is spending large portion of time in replacing amalgam fillings done by preceding operators who possibly performed similar number of hours of service for less money, yet failed to please and retain Hon. Patient who presently escaped and found more satisfactory services elsewhere because of greater net value of services rendered by superior gold inlay restorations.

Porcelain jacket crown is delicious operation capable of greatly expanded range of usefulness, because artistic and remunerative possibilities are not yet perceived by Hon. Average Practitioner. Time required to trim stump and obtain complete impressions seldom exceeds sixty minutes and may be less occasionally. Time required to set finished crown as furnished by any modern Porcelain Laboratory is very slight. High brow operator who sells only five to seven P.J's per annual year at $100.00 per copy in exclusive and fashionable practice is obtaining excellent fees in limited quantities but slightly more Democratic Brother who husks out 2 to 10 P.J's per each week at $25.00 per each is making much more imposing total from porcelain Dept. of Hon. Practice and is also and simultaneously improving the smiling line of much wider circle of Friends all of whom are greatly pleased over value received and few of whom are tongue-tied in commenting in Public or elsewhere on benefits obtained at fair price in offices of particular D.D.S. responsible for improvements as noted. All patients have more or less mental perception, conversational abilities, powers of Publicity. No man is so exclusively dependent on free Public Broadcasting regarding standing, ability, fairness, etc. as is

Hon. Ethical Professional man who must continuously maintain first-class reputation based solely on reports circulated by means of free speech among all sorts of persons who are doing so.

Competition continues to be extremely present and compelling law of growth and development; intelligent Human Being seeks to understand and admit all facts regarding remorseless functioning of same and conduct all acts of life including Hon. Dental Practice accordingly. Therefore Mr. Editor let each man of D.D.S. degree seek to give fullest values in way of services along lines of greatest competence and personal ability and presently incidental facts of increased bank balances, more congenial character of cases undertaken and other desirable, etc., will appear as joyful by-products of daily practice.

Hoping you are the same,

Togo.

Appointment to Ohio Board of Health

The recent appointment of W. I. Jones, D.D.S., to the State Board of Health of Ohio shows clearly the attitude toward oral conditions that is spreading through the country. According to the *Columbus Evening Dispatch,* there are at least fourteen other States that have taken a similar step. We heartily approve of the procedure and trust that in the near future it will be universal.

Death of Charles Albert Sykes

1854-1927

On August 28, 1927, there died at his country home in Dutchess County, New York, after an illness of several months, a man who has served the dental profession well in ways that are generally known, and perhaps even better in ways unknown to most of those who have benefited by his labors.

Charles Albert Sykes, or, as he was affectionately known to thousands of dentists, "Charlie Sykes," came to this country from England in a sailing vessel in 1859, but went back soon after to receive his early education. There he became identified, in 1874, with Claudius Ash & Sons, of London, and with this firm maintained his business connection up to the end of his business career. He rose from one position of trust to another and became President and Treasurer of Claudius Ash Sons & Co., U. S. A., Inc. When the English firm was merged into The Amalgamated Dental Co., Ltd., of London, Mr. Sykes became a Director of that Company and remained such until he tendered his resignation during his final illness.

Some men do small deeds so loudly as to make them seem great, while others do constructive things so quietly that few recognize the magnitude of their service. Mr. Sykes was of the latter type. His sterling character, his breadth of vision and his willingness to work for the common good rather than for personal or selfish advantage so commanded the respect of all who knew him that it is doubtful whether any man in the dental trade enjoyed more of the confidence of his fellows than did he. To his sound virtues he added a pleasing manner and a love of sport and of nature. He was often trusted by his active competitors with tasks which, though arduous and perhaps thankless, must have shown him in what esteem he was held.

In 1902 Mr. Sykes was unanimously elected President of The American Dental Trade Association and was re-elected in 1903, 1904 and 1905.

The writer never had opportunity to become intimately acquainted with Mr. Sykes, but came in contact with him several times when Dr. Ebersole appealed to the dental manufacturers for funds with which to make his now classical exhibit of the benefits of oral hygiene in the public schools of Cleveland. Partly under the guidance of Mr. Sykes, the manufacturers raised several thousand dollars to make possible practical work by the Oral Hygiene Committee of the National Dental Association. As one of the profession, the writer was asked to serve on the committee to assist Dr. Ebersole and report the progress to the

manufacturers. This brought him somewhat into contact with Mr. Sykes and the writer was always strongly impressed with the breadth, clarity and sanity of his views of service for the common good.

This work and other work done equally well but less conspicuously have passed, so far as the results go, into the history of the dental profession, with small recognition for men like Mr. Sykes, who made it possible. It is probable that every dentist in practice today is able to serve his patients better because of what Mr. Sykes did in a long, active, honorable and useful life. And every dentist who seeks to establish any form of community oral hygiene is working, at least in part, on a platform he helped to lay.—G. W. C.

Death of Dr. Caughron

It is with regret that we learn of the sudden death of Dr. J. R. Caughron of Oklahoma City, Okla., who passed away on August 3, 1927. Dr. Caughron was a member of the National Society of Denture Prosthetists and of the American Dental Association, and his loss will be keenly felt.

PRACTICAL HINTS

This Department is now being conducted from the office of The Dental Digest. To avoid unnecessary delay, Hints, Questions and Answers should be addressed to Editor Practical Hints, The Dental Digest, 220 West 42d Street, New York, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

Poor Radiographs

In the past few months numerous radiographs have been received by this department as an aid in establishing a diagnosis. These have led to the conclusion that there are a great many men who have not the slightest idea as to what constitutes a good radiograph.

It is true that in the majority of cases it is possible to follow the outline of the teeth and tell to what distance a root-canal filling has been inserted, but most of those received are lacking in that clearness of detail that shows the varying density of bone and the exact condition of the peridental membrane. Needless to say, they are valueless from a diagnostic standpoint.

Now there is nothing mysterious in the taking of a good radiograph. It has been reduced almost to a mathematical certainty—so many seconds' exposure at a certain angle, so many seconds in the developer, so many seconds in the fixing solution. About the only variable is the density of the tissue dealt with.

A poor radiograph is worse than no radiograph at all, because it is apt to be misleading. Perhaps a dentist does not wish to admit that he cannot take good radiographs, so he informs the patient that he can see nothing wrong in the negatives. This is, of course, absolutely true, and the patient goes away with a false feeling of security until some other dentist shows up something very definitely wrong.

If a man cannot take a course in technic, he can at least buy a good book on the subject—there are several—and by carefully following the directions learn to take radiographs that will be of some value to the patient and, incidentally, to himself.

—EDITOR, PRACTICAL HINTS.

Editor, Practical Hints:

To Prevent Gagging—I noticed in the December (1926) issue under *Practical Hints* the question, how can you prevent gagging while taking an upper impression, etc.?

Some years ago I had a patient who started gagging the moment he entered my surgery for his impression. The very thought of having to have a tray placed in his mouth seemed to nauseate him. He would not allow me to make a single attempt and begged me to lend him a tray for home use to enable him to get accustomed to it. I told him that such a procedure would only make matters worse, so he preferred to wait another week as he really could not face the ordeal that day. I instructed him to give the matter no thought at all, but just come in after a week and I would somehow get the necessary impression. He left assuring me that it would be an impossibility.

During the week I thought about spraying and anesthetizing the throat, when somehow it struck me that one gags or gets nauseated easily because of some unpleasant taste or odor, chiefly the latter. I could not associate a pleasant scent of flowers or trees with that awful feeling. Adding vanilla essence to the plaster might have serious results (people here like ice cream as much as they do in the U. S. A.), so I naturally dropped that idea. I therefore concluded that by letting him smell something pleasant I might by reflex action of the nerves take the mind away to a certain extent and so counteract the feeling of gagging.

The patient duly presented himself. I chatted about other things, took an upper tray from the sterilizer, chilled it, and without his noticing anything, splashed some lavender water on it and placed it in his mouth for the size. Then I told the nurse to mix plaster, which, too, was slightly flavored. I then took the impression and immediately held a piece of cotton saturated with lavender water under his nose. It worked very satisfactorily, and when the impression was removed, nobody was more surprised than the patient.

H. C. F. might try this, and let you know through *The Digest* what he thinks of this simple remedy.

P. G. Wium,
Johannesburg, South Africa.

Novocain Dermatitis—In regard to the treatment of skin trouble, sometimes termed *novocain dermatitis,* I am sending you the following:

The skin of the palms of the hands and fingers becomes hard, dry and thick with deep fissures. The skin peels off to a very delicate, tender

underskin with very little irritation except a sort of burning sensation when the skin begins to thicken. There is no discharge from the fissures. The skin then heals, only to repeat the same process.

It is very doubtful whether novocain is the cause of this kind of skin trouble, for cases existed before the use of novocain, It is also found among barbers, cleaning-women and people of like occupations.

There is very little doubt that this particular kind of skin trouble among dentists is due to excessive washing of the hands, together with the contact with medicines, saliva, blood and the dehydrating effect of plaster, all of which tend to remove the natural oil from the skin. Certain ointments and antiseptic soaps tend to do the same thing. To bear out these conclusions, one finds that a vacation of sufficient length will cause the hands to heal without treatment.

Treatment—Melt together equal parts of paraffin and white vaseline. If the ointment is too hard to work easily, add more vaseline, but have the ointment as hard as can be used. Sometimes in the office it is well to have it so that it is necessary to warm it a little in order to use it.

Wash the hands with castile soap so as to soften the skin, and then thoroughly remove all the soap. Apply the ointment by rubbing it well into the skin. Remove the excess (if working) with a dry towel. Apply the ointment every time the hands are washed. Dispense with all other ointments and antiseptic soaps.

The conclusion drawn from the foregoing is that the trouble is occupational and caused by a loss of the natural oil of the skin, and while the vaseline helps to soften the skin, the paraffin fills in the pores, forming a thin coating or glove, thereby retaining the natural oil and preventing water from removing it.

The treatment must be followed religiously to get results. When the hands are healed, its use a few times a day and at night is sufficient to keep the trouble away.

F. H. Tatlock,
Oneonta, N. Y.

CORRESPONDENCE

Coldwater, Kansas.

Editor, DENTAL DIGEST:

I am sending a lower lingual bar case with some attachments that I think have advantages over any other style of attachment that I have had any experience with.

One of the advantages is that it cannot be loosened by lifting up on the back end of the plate; in fact, the harder you pull the tighter it grips. You will see that the mechanical principle is such that you

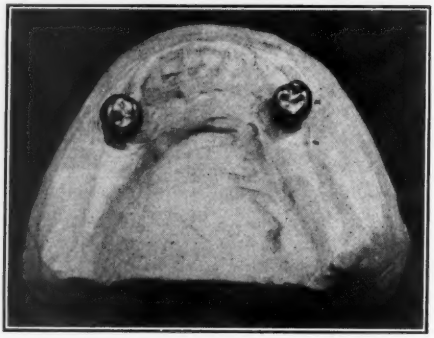


Fig. 1

must press down on the posterior portion and at the same time lift up on the anterior portion to loosen it.

But the greatest advantage is that it is so easy to take care of the wear. I have observed in all other attachments that I have tried that they work very well when new, but after about one year of use they begin to get so loose that they must be taken up so often that they are soon worn out. When they are worn out, it is almost as much work to repair them as it is to make a new job, and also, as some of our writers are telling us, an attachment that does not permit a certain amount of movement while holding the artificial work will soon make trouble in the peridental membrane of the anchor teeth.

The movableness of removable work, as Dr. Louis A. Ungar in the November (1926) issue of THE DIGEST tells us, is highly important.

Any dentist with enough mechanical ability to make a gold crown can easily make this attachment, which is not the case with most of the attachments on the market.

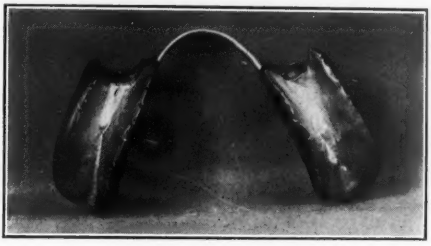


Fig. 2

There are a few little details in the making of the appliance that I might mention. In practical cases I use a little larger wire than on the case I am sending, so that the top will have a wider sloping surface so that the plate portion of the attachment will always strike it. In soldering the crown portion I use a small piece of old ribbon saw, heating it first to remove the temper, then bending it in a circle the size of the crown and slipping it under the crown portion of the attachment. This prevents the solder from flowing farther than you want it to. As both portions of the attachment should have a little spring, they should be made of clasp wire.

In vulcanizing I take the crowns off with the impression and reinforce the plaster well when pouring the model, so that the crowns will

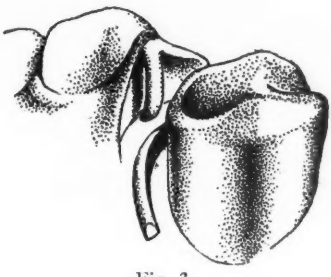


Fig. 3

not break off. With a small wire around the crown I bind the plate portion of the attachment to the crown well to the top and with a little

fresh-mixed plaster (or zinc cement) fill the space between the crown attachment and the model so that it will hold firmly the plate portion of the attachment while the flask is being screwed together.

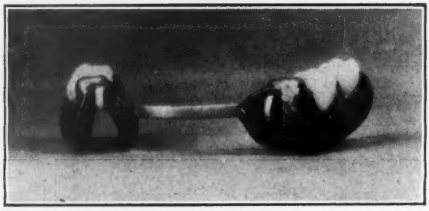


Fig. 4

With short bites and small ridges I never try to use a porcelain tooth next to the attachment, but a gold shell. The plate portion of the attachment can be soldered to the first gold tooth if preferable.

W. D. KIRBY.

Miles City, Montana.

Editor, DENTAL DIGEST:

Some time ago I removed, as I supposed, all teeth from the mouth of a 55-year-old man. He waited nine months, at which time I made him a set of dentures. One year and nine months later he appeared with a badly swollen face and terrific pain. X-rays revealed a lower right wisdom tooth. I reduced the swelling and removed the tooth. Two or three months of suppuration followed, with trouble galore. With the aid of an M.D., drainage was established through the outside of the jaw and we thought our troubles were over. Yesterday, six months after the removal of the first wisdom tooth, I discovered the other wisdom tooth showing up on the left side of his jaw. And there the x-ray machine hung on the wall within arm's length all that time. Why don't we use a little foresight?

W. M. SMART.

Hollywood, California.

Editor, DENTAL DIGEST:

The enclosed film will plainly indicate why dentists should avail themselves of the use of the x-ray more frequently in their diagnosis. This case would of itself suggest the taking of an x-ray as an essential step.

The patient, a young lady of 15, was advised by two dentists not to have the deciduous cuspid removed, for fear that another might not erupt. Questioning elicited the information that films had *never* been taken before.

The position of the permanent cuspid, whose pressure against the deciduous has caused great absorption of the root of the latter, naturally suggests that it will subsequently erupt, even if abnormally, upon the removal of the deciduous tooth, whereupon orthodontic means can readily be employed to bring it into alignment.

WILLIAM T. SHERMAN.

Medicine Lodge, Kansas.

Editor, DENTAL DIGEST:

Enclosed are a couple of prints. In one is a right lateral fused with a supernumerary. The other three incisors are in place.

In the other is a supernumerary right third molar erupting horizontally above the normal third molar, which is doing its best to erupt. All other teeth are in place in the mouth apparently quite normally.

Both patients are about twenty years of age, and both came in for work the same afternoon.

L. L. OSBORN.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of The Dental Digest, 220 West 42nd Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42ND ST., NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

Will you please tell me the difference between a sunstroke and a heat prostration? I was discussing these with a friend and she said there was no difference. I am sure there is, but thought some one else's confirmation would help to convince my friend. I think it would also be interesting for others of your readers to know about.

I have learned many valuable things by reading the *Questionnaire,* which I think is fine. P. H., Ill.

ANSWER—There is a distinct difference between a sunstroke or heat-stroke and a heat prostration or exhaustion. A sunstroke or heat-stroke affects the entire body and is a very dangerous condition. It is sometimes caused by direct exposure to the sun's rays in summer, especially if the percentage of humidity in the air and the temperature are high. Or it may be caused indoors by a lengthy exposure to excessive heat while working, and if overtired. If the head is unprotected from the sun or heavy clothing is worn, sunstroke may result from these causes more readily. The use of alcoholic stimulants under such conditions may also result in a sunstroke or heat-stroke.

The symptoms are usually pains in the head, oppression, and unconsciousness. These develop rapidly, the pupils are dilated, the face red

and the skin hot and dry, the breathing labored and sighing or feeble and gasping, with a rapid pulse, and often a twitching of the muscles. The extreme high temperature of the body is a characteristic symptom, which should be reduced as quickly as possible. For this, remove the stricken person to a cool place and lessen the clothing as much as possible. Cold water or ice should be applied to the face, neck, chest and arm pits while a cold bath is prepared; if this is not possible, then the stricken one should be wrapped in blankets or sheets wrung out of ice water. With this treatment the body should be rubbed to keep up surface circulation and prevent shock. When conscious, cold water may be drunk freely, but no stimulants of any kind should be taken. A heat-stroke or sunstroke may often be avoided by keeping out of the sun and avoiding over-fatigue, or by stopping work, bathing the face, hands and chest in cold water and drinking freely of water.

Heat prostration or exhaustion is caused through the same agencies as sunstroke or heat-stroke, but is very different in action and symptoms, which are in general as follows: dizziness, accompanied by nausea and vomiting, intense depression and weakness but no total unconsciousness. The temperature is usually below normal, the face pale and covered with a cold, clammy perspiration. Sometimes the face is flushed, but never very hot and dry, the breathing is shallow and the pulse is rapid and weak.

The stricken person should also be removed to a cool place and clothing should be removed if possible or well loosened. Cold should not be applied externally, but he may drink cold water. In this case stimulants must be given, if nothing else is available. This may consist of strong coffee or tea.

In giving you the difference between the sun or heat-stroke and heat prostration or exhaustion we have endeavored to give the causes, symptoms, treatments and prevention for each briefly. While these first-aid remedies are very useful and prevent many serious consequences and casualties, one must never forget *to send for a doctor* at once.

Dear Miss Pierce:

I should appreciate it very much if you would inform me how I can join the Dental Assistants Association, as I have been an assistant for a number of years. I am a constant reader of *The Dental Digest* and like your columns very much. M. Y., N. Y.

ANSWER—During the past few months we have received a number of inquiries similar to that above regarding the manner of joining a society for dental assistants, qualifications necessary, etc.

As we understand it, the principal requirement is that the appli-

cant for membership must be employed in the office of an ethical practitioner of dentistry, one recognized as such by the dental profession according to the Code of Ethics established by the American Dental Association and that of the dental societies of his respective state or district.

In some of the societies for dental assistants throughout the country an applicant for membership must have been employed a certain length of time in a dental office before she may become an active member. The periods of employment vary, six months to a year being the average. In the meantime, she may become affiliated as an associate member.

Having received specific inquiries regarding affiliation with the American Dental Assistants Association, we would suggest that the readers interested communicate with the General Secretary, Miss Maude Sharpe, Suite 1202, 8 West 40th Street, New York, N. Y. Those of our readers who are interested in joining the Society in New York should address Miss Robina McMurdo, 140 East 80th Street, New York, N. Y.

Dear Miss Pierce:

One of the doctor's patients was seized with a severe attack of hiccoughs a few days ago while in the chair. We tried to relieve her, but were not successful, and she had to go to her physician. I wish you would tell me just what to do if this should happen again with any of our patients. B. S., N. J.

Answer—Hiccoughs are caused by a spasmodic contraction of the diaphragm and are usually due to indigestion or overeating. Holding the breath as long as possible often will cure an attack, as it forces the diaphragm down, preventing its contraction. Sipping a large glass of water without taking a breath has the same effect. If these do not help, then resort to the removal of the irritating material from the stomach by producing vomiting. No doubt you have seen people try to stop hiccoughs by a scare, such as a sudden shout or jolt. This sometimes helps because it causes the patient to take a long breath.

Dental Secretaries

Dear Miss Pierce:

I was very much interested in your Dental Secretaries' and Assistants' Questionnaire of September, 1927. Your article signed by X.Y.Z., I believe, has just cause for complaint. A young high-school graduate working in a dental office three years seems to me would be a great help

to any busy dentist, and I do not believe that he realizes her worth to him in his office. To me my assistant is indispensable. I consider her as a partner, and I believe she is entitled to fair compensation for her duties, which X.Y.Z. is not receiving. If the dentist used the shrewd method in accumulating money that he does in driving a hard bargain for his assistant's services, he could well afford to pay a reasonable salary to her.

I believe I know whereof I speak, as I am in a position to appreciate the services of a worthy assistant, having stood at the chair for thirty years, twenty of which I was without help. A good assistant in our position is as much to be desired as fine gold. E. A. W.

Educational and Efficiency Society for Dental Assistants, First District, New York, Inc.

A regular meeting of the Educational and Efficiency Society for Dental Assistants, New York, will be held at the Academy of Medicine, 2 East 103rd Street, New York, on Tuesday evening, October 11, 1927, at 8 o'clock. There will be two speakers on the program, a prominent member of the dental profession, who will speak on a topic pertinent to dental assisting, and a woman speaker, who will discuss a topic of current events in women's work. A report on the clinics presented by the Society at the 59th Annual Convention of the Dental Society of the State of New York at Buffalo in May, 1927, also will be presented.

The Society meets regularly on the second Tuesday evening of each month, October to May, inclusive, at the Academy of Medicine. A cordial welcome is extended to the members of the dental profession, and dental assistants are urged to become members.

Our Duty to Our Association, Local and National*

By Blodwen M. Williams, Oil City, Pa.

About one and a half years ago, hungry for professional association with others in my calling and eager to learn more of the fine ideals and purpose of dental assistants in their organization work, I affiliated with the Pittsburgh Educational and Efficiency Society for Dental Assistants, which was then beginning to function under the leadership of the president and founder, Frances E. Wagner. This was but the beginning. I now journey over 80 miles to attend the meetings and, notwithstanding the long distance and incidental expense, I feel amply repaid for the trip in the association afforded with the earnest members of our Society.

Dr. H. E. Friesell, Dean of the Dental School, University of Pittsburgh, has made it possible for classes covering phases of the dental assistant's duties to be held weekly at the school, which most of the girls are attending. I deeply regret that I am not able to avail myself of this unprecedented opportunity. However, my trip means a half-day away from the office and, while my good employer never objects, I feel that to take weekly trips would be encroaching on good nature. May I add here that the monthly sojourn to our meetings is taken on my usual weekly afternoon off, for a rural practice of any consequence requires one's undivided attention just as it does in real dental practice located anywhere. Perhaps I may explain that the duties of our office are increased by the fact that we have the only x-ray machine between Pittsburgh and Oil City, a matter of 140 miles, and that we do the x-ray work for five medical men in our surrounding territory. Of course, this necessitates that someone be on duty in the office at all times in case of emergencies.

As a rural dental assistant, and having been in active work but five years, I visualize the future in a mammoth dream of great possibilities for the assistant who loves her work, and to love's one work is one of the surest ways to success. But I wonder, besides loving our work, if we delve deeply enough into the necessity of co-operation to attain success.

Our National Association is likened in my mind to a phase in our existence depicted by our national administration; first, the nation as represented by our seat of Government at Washington, with the President and his Cabinet, faithful guardians of the interests and welfare of its citizens at large; then the States represented by their respective senators and capitols, the seat of Government for each State; and finally the local seats of Government as typified by the mayors of our cities,

* Read before the American Dental Assistants Association, Philadelphia, Pa., August 19, 1926.

towns and villages and the City Hall as the Government seat, each of these a unit in itself, yet responsible in turn to the community, the commonwealth or State, which in turn is responsible to the national Government.

The American Dental Assistants Association is our national head, its headquarters our capitol; we, the constituent societies, are the states and the cities under local government, playing a vital part as organized citizenship toward the achievement of our duty to humanity. Our executive officers are comparable to the President and his Cabinet; our board of trustees to the senators, because they represent the States; and our delegates compare with the members of the House of Representatives, for they represent the individual membership pro-rata. Each of these special parts of our administration has certain duties to perform, but none is independent of the others—one part cannot function without the co-operation of the rest. Therefore you will see that it requires prompt and efficient action on the part of each division to bring about satisfactorily the results that this Association hopes to attain. May I ask, are you loyal citizens? Am I a loyal citizen? First to the local society and thereby to the National Association?

When a group of dental assistants desire to form an association, the leading spirit or spirits call a meeting. After some preliminaries the officers are elected and installed and then the machinery begins to function. Stop! Is this functioning mechanical in your society or do you lend your personal and individual interest and support? Are you live timber budding into leaf or are you a dead twig, causing discouragement and halting the blossoming out of your society? Let your heart and conscience be your guide. Love our work we do! Attend all the meetings we will, and be prompt! Bring a new thought—leave it! Take one back to our office and *use it!*

To develop interest, bring in new members, talk of the best side of our work, the advantages and opportunities our society affords. Alas! It is only too true, we are merely human beings and know well that there is an inside and outside to life and all it holds. The affirmative means gain, the negative means loss, therefore let us cultivate this great affirmative habit. Support our officers and let us not shirk office duty. "Character is formed through experience." To learn, we must resolve to be taught. Therefore we must help the program committee; yes, suggestions are always in order in a well-planned society and we individually are part of this plan. We must pay our dues and grasp every opportunity to be an active part ourselves. Arise and be an active light for the betterment of your society and thereby an asset to the calling of the dental assistant.

It is our duty to build on the foundation laid for us by our noble National president. We should aim high and take advantage of all the

opportunities afforded us, such as classes held locally, dental clinics and lectures available to the assistant, and be a part of the national meeting by making every effort to be present. This may entail personal sacrifice, but nothing is ever accomplished without it. One can always find a new idea and reap a harvest by trying to see the other fellow's point of view, for to receive we must give. "Hide not your talents under a bushel, but give of them and you will receive."

Science tells us that big things can develop only through combined efforts. Thus organized education laid at our feet today by the leaders of medicine, dentistry, literature and art is ours for the taking. The great movement for the education of the dental assistant, which will enable her to raise the standard of her calling to that of a recognized dignified profession, is being developed through the inspiration and idealism of Juliette A. Southard, now our National president. Let us mould it into a profession worthy of admiration and respect, nationally and internationally. Words and deeds emulated by the dental assistants are inscriptions on our cornerstones.

May the future inscriptions on the walls of the building prove the necessity and value of the trained dental assistant. This necessity well applies to the rural districts and the dentists practicing therein. The trained assistant is an asset to the general practice or the specialty anywhere, especially in the rural field. Her duties, no matter where she may be, are many and varied, often very new, and in order to cope intelligently with any situation, training is truly essential. Within the surrounding country with which I am familiar there are dentists practicing ethical dentistry with no assistant. Why is this? No doubt older and more experienced advice will help to solve this problem. However, I believe that the dental profession and organized education when thoroughly established will create a demand for this valuable asset in quantity, as well as quality, namely, the trained dental nurse or assistant. And this brings me back to the fundamental thought in this paper —our duty to ourselves, to our fellow members, to our calling and, last but not least, to our society. In closing, may I offer a bit of homely advice:

Don't sit down and wait for good luck to come by,
  It may keep you waiting forever.
If you want every meal to conclude with mince pie,
  You have got to be active and clever.

The world will not pay you the living it owes
  Unless you will aid and abet it;
Don't waste your good hours in slothful repose,
  But take off your coat, and Go Get It.

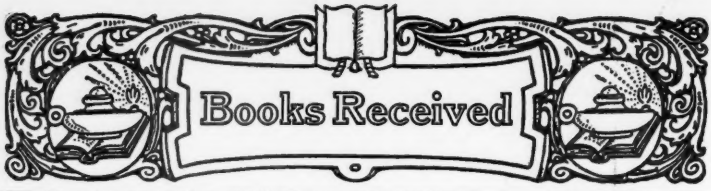
If some chap has a job that you think you can fill,
Make hoping to land it a habit;
Some day he may die or fall mortally ill,
And then you can step in and grab it.

Don't wait 'till too late to apply for his place,
Or the rest of your life you'll regret it;
For the fellows who win the first prize in the race,
Are those with the nerve to Go Get It.

[PREVENTION]

When a sick person applies to a physician for treatment, there may appear but little to do with regard to that particular patient and his immediate illness but to try to restore him to health. A sick nation, however, is made up of millions of persons, only a proportion of whom are at the time in the ordinary sense sick; but the rest of whom are constantly exposed to the danger of becoming ill. The national problem therefor, includes not only the restoration of the sick to health but the prevention of disease among those who at the time may be healthy.

—DRAPER.



A BOOK MAY BE AS GREAT A THING AS A BATTLE—DISRAELI

This Tooth Proposition, Dealing with Problems That Give Importance to the Ever Popular Subject of Teeth, by Mathew Joseph Reidy, D.D.S., of Graettinger, Iowa.

This book is an attempt, and a very creditable one, to place before the public certain facts concerning dentistry in which they are vitally interested. The care of the teeth, the relationship of good teeth to good health, and the part that bad teeth may play in the causation of disease are clearly set forth. In the last instance the author treats the case very conservatively and is far from being an alarmist.

The greatest need is stated as being education of the public and co-operation between the patient and the dentist. It makes one wonder why people will persist in neglecting their teeth.

The final chapter is devoted to oral hygiene in the school and shows the definite advantages that accrue when this system has been inaugurated.

This book is very readable, full of information without any misinformation, and it is to be hoped that the profession will endeavor to give it a wide circulation among the laity.

179 pp. Des Moines: The Iowa Homestead, 1927.—A. M. J.

New Book of Poems

It is always interesting to learn of the activities of dentists outside of this professional field. We enjoyed reading a little booklet of poems written by E. R. Stealy, D.D.S., who practices in Shenandoah, Iowa. We only regret that the dental material on hand is so pressing that we cannot give space to the publishing of some of it.—A. M. J.

EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—*ADDISON*

Everybody is somebody's bore.

The great adventure wasn't when Lindbergh or Columbus crossed the Atlantic, but when a little child looking up a flight of stairs decided to climb it.

(Wifey)—John, dear, I am to be in an amateur theatrical. What would folks say if I were to wear tights?

(John)—They would probably say I married you for your money.

My heart leaps up when I behold
An airplane in the sky
But up to date I have controlled
My frantic urge to fly;
Like lots of others in this nation,
I'm strong for armchair aviation.

'TWAS EVER THUS

In a letter dated 1826 the school board of Lancaster, Ohio, refused to permit the use of the school house for a debate as to whether railroads were practical. The letter reads:

"You are welcome to the school house to debate all proper questions in, but such things as railroads and telegraphs are impossibilities and rank infidelity; there is nothing in the word of God about them.

"If God designed that his intelligent creatures should travel the frightful speed of 15 miles an hour he would have clearly foretold it thru His holy prophets.

"It is a device of Satan to lead immortal souls down to hell."

Flapper's Husband—"There's a limit to all things," says Ichabod. "I don't mind washing the dishes. I don't mind feeding the cat. I dont mind mending my own clothes. But I'll be durned if I'll wear pink ribbons on my nightshirts to fool the baby.

A little girl was constantly using profane language, and the mother cautioned her by saying: "No little girl can live with me who talks that way."

The mother also warned her that for the next offense she would have to take her clothes and leave the house. Early next morning little Mary was sitting on the front porch with her bundle of clothes. A neighbor passing by asked Mary, "How's Mother?" to which she replied, "Damn if I know. We're not living together any more."

An investigator states that ninety-seven per cent of the men in the world tamper with the truth.

This is encouraging information; it shows that the world is getting better.

According to the Psalmist's report, all men were liars—a clear gain of three per cent since David's time.

REVISING THE WISECRACKS

A soft collar turneth away wrath.

Two heads are better than one—ask the barber.

She who laughs first has pretty teeth. She who laughs last has poor dentures.

BERTON BRALEY SAYS:

The fashion is to sneer at them, to mock
and mouth and jeer at them,
Those simple honest maxims that the
copybooks contained;
For modernists most cynical look down
as from a pinnacle,
And tell us that the potency of ancient
saws has waned.
They damn them in totality for all their
"smug morality."
"Be good and you'll be happy" is, they
tell us, false and trite;
But spite of skeptics critical and hyper-
analytical
I have a mild suspicion that the copy-
books are right!

An ad for a lecturer says, "He speaks straight from the shoulder." Too bad some of these talks can't originate a little higher up.

(Father)—There is nothing worse than to be old and bent.

(Son)—I think there is, dad.

(Father)—What can it be?

(Son)—To be young and broke!

If the League of Nations would only agree not to have another war until the last one is paid for, everlasting peace would be assured.

Prohibition may not have done much for the country, but it has reduced the number of men who think they can sing.

"What do the American people do with all their money?" asks a visitor from France. Well, if he stayed at home long enough he'd find out.

FUTURE EVENTS

The next annual meeting of the INTERNATIONAL STOMATOLOGICAL ASSOCIATION will be held in Paris, October 26, 1927, in conjunction with the scientific sessions of the Fifth French Congress of Stomatology, October 24-30, 1927, to be held at the Faculty of Medicine and the French School of Stomatology. Delegates from the following countries have been assigned: France, Belgium, Italy, Czechoslovakia, Hungary, Poland, Portugal.

For information regarding the scientific program, address Dr. Leclercq, 9 Boulevard de la Madeleine, Paris (1). Communications pertaining to the American Section should be addressed to 126 East 40th Street, New York.

ALFRED J. ASGIS, Associate General Secretary.

An organization of ALL DENTISTS INTERESTED IN PEDODONTIA and its relative phases of prevention is to be established in Detroit at the time of the national meeting in October.

All practitioners of dentistry, or those in relative fields interested in this work, shall be eligible for membership.

a. Those limiting their practice to the care of children's teeth, whether in private practice or in public health institutions, shall be eligible to an active membership.

b. Associate membership (non-voting) shall be available to all others.

For further information and application for membership apply to Dr. S. D. Harris, 2002 Eaton Tower, Detroit, Michigan.

THE CONNECTICUT DENTAL COMMISSION will meet at Hartford, Conn., November 15-17, 1927, to examine applicants for license to practice dentistry and dental hygiene, and to transact any other business proper to come before it. For further information, apply to

ARTHUR B. HOLMES, Recorder,
80 Central Avenue, Waterbury, Conn.

THE IOWA STATE BOARD OF DENTAL EXAMINERS will meet at the State University of Iowa College of Dentistry, Iowa City, Iowa, December 12-13-14-15, 1927, at 9 A. M., for the purpose of examining applicants for a license to practice dentistry in Iowa. An examination for Dental Hygienists will be given.

For further information and application blanks address the State Department of Health, Capitol Building, Des Moines, Iowa.

All papers and credentials must be filed with the Department at least fifteen days prior to date of examination.

THE AMERICAN ASSOCIATION OF DENTAL SCHOOLS will hold its fifth annual meeting at the Mayflower, Washington, D.C., March 26-28, 1928.

DELOS L. HILL, Secretary,
1206 Medical Arts Building, Atlanta, Ga.